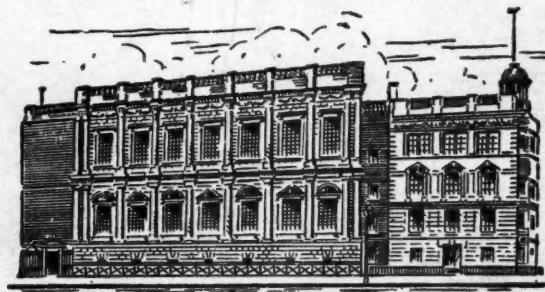


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		<u>335,565,144</u>
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Paid-up Capital	15,858,217	
Reserve Fund	10,250,000	

ASSETS.

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Balances with other British Banks and Cheques in course of collection	9,638,649
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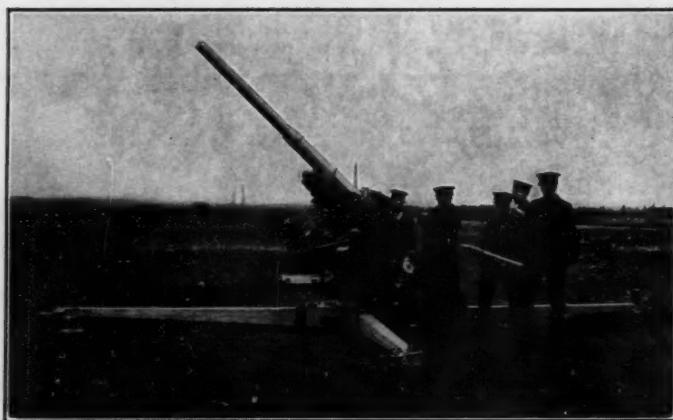
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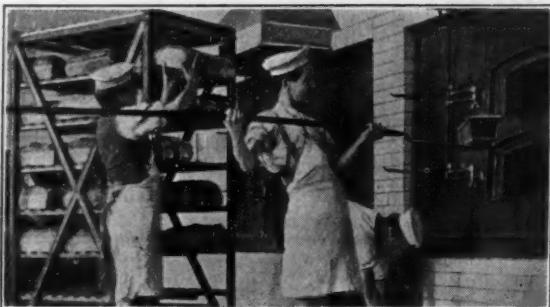
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It is important that Officers joining should furnish full and clear particulars of their Name, Rank, Ship, Regiment or R.A.F. Squadron, etc., and the address to which they wish their JOURNALS sent.

Officers of the Indian, Dominion and Colonial Naval, Military and Air Forces temporarily in the United Kingdom may become members for a period of six months on payment of Ten Shillings and Sixpence, or One Guinea for twelve months.

SPECIAL FACILITIES FOR JUNIOR OFFICERS.—Officers of less than three years seniority in commissioned rank, Midshipmen R.N., R.N.R., R.N.V.R., and Naval, Military and Air Force Cadets are not required to pay the Entrance Fee, but their membership will date from 1st January.

THE INSTITUTION.

The Royal United Service Institution is situated just below the War Office in Whitehall. It has the best professional Library in the United Kingdom; a Lecture Theatre where an autumn and winter session of lectures is devoted to subjects of current or historical Service interest. The Reading and Smoking Rooms are provided with the leading papers, periodicals and writing materials.

The Institution is open daily from 10 a.m. to 7 p.m., except Sunday, Christmas Day and Good Friday.

THE JOURNAL.

The R.U.S.I. JOURNAL is published quarterly and sent post free to Members in any part of the world.

THE MUSEUM.

Situated in the Banqueting Hall of the old Palace of Whitehall (1622), with its magnificent Rubens ceiling, the R.U.S.I. Museum is a treasure house of relics and mementoes of great victories and renowned warriors. There is also a most valuable collection of Uniforms, Medals, Ship Models, and models of the battles of Trafalgar and Waterloo.

For Members and their friends, there are private entrances to the Museum from the Institution.

H.M. Forces in uniform are admitted free at the public entrance.

Admission to the general public is 1s.; Saturday after Noon, 6d.

SECRETARY'S NOTES

February, 1932.

Anniversary Meeting.

The Anniversary Meeting will be held on Tuesday, 8th March, at 3.30 p.m. The Council will present their Annual Report and Accounts, and there will be an election to fill the vacancies on the Council. The Gold Medal will be presented to the winner of the 1931 Essay Competition.

Copies of the Annual Report to be presented at the Meeting can be supplied to Members in advance on application to the Secretary.

Council.

The following Members of the Council having completed three years service, retire at the Anniversary Meeting :—

Royal Marines.

General A. G. Little, C.M.G., R.M.

Royal Naval Volunteer Reserve.

*Captain The Earl Howe, C.B.E., V.D., R.N.V.R.

Regular Army.

Major-General Sir J. E. Capper, K.C.B., K.C.V.O.

Territorial Army.

Colonel A. S. Bates, D.S.O., T.D.

*Colonel B. Abel Smith, D.S.O., M.C., T.D., A.D.C.

Of the above, those marked * have offered themselves for re-election. This leaves one vacancy each for the Royal Marines, Regular Army and Territorial Army.

Colonel W. W. Godfrey, C.M.G., R.M., has been nominated to fill the Royal Marine vacancy; General Sir Robert Whigham, G.C.B., K.C.M.G., D.S.O., to fill the Regular Army vacancy; and Colonel F. D. Samuel, D.S.O., T.D., to fill the Territorial Army vacancy.

New Members.

The following Officers joined the Institution during the months of November, December and January :—

Royal Navy.

Captain E. E. Johnson, R.M.

Midshipman J. S. Dalglish, R.N.

Sub-Lieutenant B. R. H. Ward, R.N.
 Lieutenant P. A. R. Withers, R.N.
 The Rev. W. F. Scott, B.A., Chaplain, R.N.
 Lieutenant T. K. Walker, R.M.
 Sub-Lieutenant W. H. I. Bowater, R.N.
 Lieutenant A. D. Lenox-Conyngham, R.N.
 Lieutenant J. M. Phillips, R.M.
 Captain J. T. Hall, R.M.
 Sub-Lieutenant F. R. Twiss, R.N.

ARMY.

Lieutenant R. D. Bolton, R.H.A.
 Lieutenant G. D. Knight, Essex Regiment (R. of O.).
 Lieutenant G. W. Eden, The Green Howards.
 Lieutenant J. A. Gascoigne, Grenadier Guards.
 Captain K. M. Cariappa, 1st Bn. 7th Rajput Regiment.
 Major W. T. Bird, 8th K.G.O. Light Cavalry, I.A.
 Captain J. B. Kennedy, R.A.S.C.
 Captain C. H. Massé, M.C., R.A.S.C.
 A. P. J. M. P. de Lisle, Esq., late Grenadier Guards.
 Lieutenant A. J. H. Dove, R.E.
 Captain L. D. Goddard, Royal Signals.
 Lieutenant W. H. Grant, The Black Watch.
 Captain Ll. G. O. Jenkins, R.A.
 Captain T. G. Lindsay, Irish Guards.
 2nd Lieutenant G. F. O. Montagu, Coldstream Guards.
 Lieutenant J. E. Harrison, Grenadier Guards.
 J. Eyre, Esq., late Grenadier Guards.
 Lieutenant-Colonel T. M. Dill, O.B.E., late Bermuda Militia Artillery.
 Lieutenant E. M. Bastyan, The Sherwood Foresters.
 Captain D. W. Boileau, R.A.S.C.
 Lieutenant-Colonel H. T. Pownall, D.S.O., M.C., R.A.
 2nd Lieutenant G. H. C. Napier, R.A.
 Captain C. A. C. Hillyard, R.A.
 2nd Lieutenant J. M. E. Askew, Grenadier Guards.
 Lieutenant L. N. Evans, Somerset Light Infantry.
 Captain R. M. H. Lewis, M.C., R.E.
 2nd Lieutenant A. E. C. Bredin, The Dorset Regiment.
 2nd Lieutenant T. Leahy, The King's Own Royal Regiment.
 2nd Lieutenant H. D. Oclée, Middlesex Regiment.
 Lieutenant H. P. Mackley, The Cameronians.
 Lieutenant R. White-Cooper, The Bedfordshire & Hertfordshire Regiment.
 Captain E. H. M. Parsons, 2nd K.E.O. Goorkha Rifles.
 2nd Lieutenant E. C. Deanesly, 6th Bn. S. Staffordshire Regiment (T.A.).
 Lieutenant I. C. A. Robertson, R.A.
 2nd Lieutenant A. Shirlaw, 6th Bn. S. Staffordshire Regiment (T.A.).
 2nd Lieutenant T. M. Lowe, I.A.
 2nd Lieutenant D. W. Rayner, Lancashire Fusiliers.
 2nd Lieutenant J. H. Brooksbank, R.A.
 Captain J. F. Armstrong, Royal Scots Fusiliers.
 Lieutenant R. J. Shaw-Hamilton, R.H.A.

ROYAL AIR FORCE.

Flying Officer D. M. Edwards, Royal Canadian Air Force.

Special Facilities for Junior Officers

The attention of Members is invited to the special facilities which now exist for Junior Officers to join the Institution :—

Commissioned Officers of the Home, Dominion, Indian and Colonial fighting Services and their Reserves, of three years or less seniority as such ; Midshipmen, R.N., R.N.R. and R.N.V.R. ; and Naval, Military and Air Force Cadets, are admitted to Membership without Entrance Fee on payment of the first annual subscription of £1 5s.

Gold Medal Essay, 1931.

The following additional Essays have been received :—

" Frigate."

" Beware the Jabberwock, my son ! "

" When a strong man armed keepeth his palace, his goods are in peace."

" If anyone hinders our coming, you starve."

" Cavendo Tutus."

" Business as usual."

" He who will not when he may,

" When he will he shall have nay."

Results of the Competition.

The following are the results of the 1931 competition (Naval) for the Gold Medal of the Royal United Service Institution and the Trench Gascoigne Prize :—

Gold Medal and 1st Trench Gascoigne Prize :—

Sub-Lieutenant N. McI. Kemp, R.N.

Second Trench Gascoigne Prize :—

Commander R. D. Binney, R.N.

Essays written by the following are considered worthy of honourable mention :—

Lieutenant S. W. Roskill, R.N.

Lieutenant G. W. Rowell, R.N.

Gold Medal Essay Subject (Air), 1932.

The following is the subject which has been selected :—

" Discuss the importance to military aviation of fostering the growth of civil aviation. Suggest ways in which the latter could in its natural progress take account of the requirements of military aviation."

New Rule.

The following addition has been made to the rules governing the Gold Medal Essay Competition :—

" All essays are to be sent by registered post, addressed to the Secretary, Royal United Service Institution, Whitehall, London, S.W.1. Official sanction will be obtained in the case of essays submitted by serving officers before they are published."

Lecture Cancelled.

The Council regret that, owing to the indisposition of the Lecturer, it was necessary to cancel the lecture on "The Development and Future of the Fortress" which was to have been delivered on Wednesday, 3rd February, by Major-General Sir H. F. Thuillier, K.C.B., C.M.G.

Notes for Guidance of Contributors.

The Editor has been asked to publish some notes for the guidance of those who desire to offer contributions to the JOURNAL. The following are the principal points to which attention is invited:—

- (1) Preference will be given to articles which assist in the "promotion and advancement of naval and military science and literature" in practical form and which are written with an up-to-date and first-hand knowledge of the subject with which they deal. Articles relating to the Royal Air Force and to Service aviation are included under this heading.
- (2) Historical articles should point some definite lesson for the present or future and not merely recapitulate accounts of episodes of the past.
- (3) Articles of interest to students of war in all three Services are preferable to those of a highly technical nature or of such restricted interest that they could only appeal to a very limited number of our readers.
- (4) As a general rule articles should not exceed 3,000 words in length. Apart from considerations of space, experience shows that the short article which makes its points concisely is more effective and more widely read than one of a long and rambling character.
- (5) Contributions intended for the JOURNAL should be addressed to the Editor. They should be typed (double spacing), but short articles in legible manuscript can be accepted if a typewriter is not available.
- (6) The Editor is authorized to obtain official sanction for the publication of articles written by serving officers; it must be clearly understood that nothing written by such officers can be accepted for the JOURNAL without this sanction being obtained.
- (7) Except where contributors are good enough to offer articles without remuneration, this will be paid at the authorized rates.
- (8) Attention is invited to the note on the first page of each JOURNAL regarding authors alone being responsible for their opinions; also to the notice at the head of "Correspondence."

Military Contributions—Commanding Officer's Approval.

Serving officers in the Army must forward the written approval of their Commanding Officer with any articles or letters sent to the Editor for publication in the JOURNAL, as this is now required by the War Office when such contributions are sent there for Official sanction.

Copies of the Frontispieces.

A limited number of copies of the coloured Frontispieces, published in recent numbers of the JOURNAL, are available for sale and can be supplied, post free, for 1s. 6d. each; 2s. 6d. a pair; 3s. 6d. for three; or 5s. the complete set.

Price of Journal to Non-Members.

The price of the JOURNAL to Non-Members, as from February, 1927 number, is 7s. 6d., or the four quarterly numbers will be sent for an annual subscription of £1.10s.; post free in either case.

Trade Discount.

Recognised firms can now be supplied with not less than one dozen copies of the JOURNAL at a time, at a wholesale price of 7s. each copy, the buyer to collect from the Institution.

Additional Copies of the Journal.

Additional copies of early numbers of the JOURNAL, if available, can be supplied post free, to Members at:—

3s. for JOURNALS prior to February, 1927.

4s. for the JOURNAL of February, 1927, and later.

LIBRARY.**Facilities for Borrowing Books.**

The special attention of Members who are now paying the current annual subscription of £1 5s. od., is invited to the fact that they are thereby entitled to the full privileges of the Lending Library without further charge. These include the right to have sent to them not more than four volumes at a time on loan, the Member paying postage both ways.

Old Members who have not wished to conform to the new arrangement and who are still paying the original subscription of £1 1s. od., must pay an additional subscription of 10/- per annum in order to belong to the Lending Library.

All Members are, of course, free to use the Library when they visit the Institution.

Rules Governing Return of Books.

The attention of Members is invited to the following Regulations governing the retention and return of books:—

- (1) Certain books, for which there is a special demand, must not be retained longer than a fortnight after the date of receipt. A notice to this effect will be found in the book.

- (2) In the United Kingdom.—Books must normally be returned within one month of the date of issue ; but the Librarian is authorised to make extensions of one month at a time on application by a Member, up to a maximum of three months from the date of issue, if the work is not required by another Member.
- (3) All Stations Abroad.—Books must not be retained for more than seven months from the date of issue.

Members are specially requested to conform strictly to these regulations, as failure to do so causes much inconvenience to others and involves the Institution in unnecessary expense and clerical labour.

MUSEUM.

Special Exhibitions.

The Exhibition of aircraft models depicting the development of aviation from the earliest days has been closed. Its place is being taken by an Exhibition of the Institution's own models representing the latest types of Service aircraft and a large Panorama showing the Spanish Armada off Calais being attacked by fire ships, with the British fleet lying in wait.

The Special Exhibitions depicting a Hundred Years of the Navy and Army are being retained for the present.

Collection of Medals.

The Institution's collection of medals has received a valuable addition by a generous gift of seven Sutlej medals from Colonel W. B. Capper. Although Colonel Capper has made every effort to complete this set, he has been unable to obtain the following four medals :—(1) Moodkee—Bar Aliwal ; (2) Ferozeshuhur—Bar Aliwal ; (3) Moodkee—Bars Aliwal, Sobraon ; (4) Ferozeshuhur—Bars Aliwal, Sobraon. It is hoped that some other generous donor may be kind enough to complete the set.

Regimental Badges and Buttons.

It is desired to complete the Institution's collection of Regimental Badges and Buttons, including those of the Regular units, Militia and Volunteers.

Members who can make contributions to the Collection are requested to communicate particulars to the Curator, who will inform them whether the Badges or Buttons offered are already in the Collection.

Additions.

- (8419) Engraving of Sir Howard Douglas, first Chairman of the Royal United Service Institution.—Presented by Mrs. Berkeley Portman.
- (8420) (1) Eight Boats' Badges.
(2) Relics of the Bombardment of Vera Cruz in 1914.—Presented by Admiral Sir H. D. Watson.

- (8421) Officer's Full Dress Busby, 60th K.R.R.C., Special Reserve Battalion (1910).
- (8422) Full Dress Busby (rank and file) of the Rifle Brigade, in wear up to 1914.—Presented by Attendant F. Goodenough.
- (8423) Waterloo Medal.—Presented by Major D. V. O'Malley, O.B.E.
- (8424) Arms of the Embarkation Staff, Southampton, 1914-1918.—Presented by Brigadier-General Sir Alfred Balfour.
- (8425) Revolver used by General The Rt. Hon. Sir Neville Lyttelton in the Fenian Campaign of 1866.—Presented by Lady Lyttelton.
- (8426) Collection of seven Sutlej Medals.—Presented by Colonel W. B. Capper, C.V.O.
- (8432) Photograph of a picture by R. E. Pine depicting Lord Rodney and officers on board H.M.S. "Formidable."—Presented by Mrs. Berkeley Portman.
- (8433) Collection of Medals.—Presented by Mrs. H. W. G. M. Griffith.
- (8434) Steam siren of the German cruiser "Konigsberg," sunk in the Rufiji River, Tanganyika on the 11th July, 1915.—Presented by Mr. C. Nicolas.
- (8435) Crayon portrait of Field-Marshal Lord Roberts.—Presented by Mrs. D. E. Anderson.
- (8436) Full Dress Uniform of an officer of the 53rd Regiment of Bengal Native Infantry.—Presented by Colonel W. G. Nisbett.
- (8437) Full Dress Coat of a Lieutenant of the Indian Navy, 1841.—Presented by Captain A. Rowand, D.S.O., R.I.M.
- (8438) Red Cross Flag which flew over the Imperial Yeomanry Hospital at Deelfontein during the South African War.—Presented by Mrs. Stiebel.
- (8439) Model of a Royal Dragoon.—Purchased.
- (8440) Collection of models of tanks and armoured cars.—Purchased.
- (8441) Model of a convoy attacked by a submarine.—Constructed and Presented by Mr. P. Maddocks.

Ship Model Postcards.

A series of photographic postcards of selected models illustrating types of ships of the Royal Navy in the days of sail and in the present fleet are now on sale at 1s. per packet of eight—post free.

Attendance.

The amount taken for admission during the past Quarter was :—

£119 4s. od. in November.

£93 16s. 6d. in December.

£139 17s. od. in January.

Purchase Fund.

This Fund has been opened to assist in the purchase of new exhibits. The Council hope that it will receive the support of Members interested in the Museum.

Museum Exhibits Purchase Fund.

	<i>£ s. d.</i>
Balance in hand ..	31 12 3
Captain B. E. Sargeant ..	2 0 0
	<hr/>
	33 12 3
Purchased —	
Statuette of Royal Dragoon ..	£3 10 0
Miniature Tank Models ..	2 5 0
	<hr/>
	5 15 0
	<hr/>
	£27 17 3

CENSUS OF REGIMENTAL COLOURS.

As previously announced, it has been decided to compile a Census of Colours, Standards, Guidons, Trumpet and Pipe Banners of all branches of H.M. Land Forces, including Regular Troops, Militia, Yeomanry, Territorial Force or Army, as well as of Fencible and Volunteer formations of the past, and of the Royal Marines. The success of this project must depend on the co-operation of voluntary supporters. Members and others interested are asked to volunteer as representatives, either of a particular regimental unit, or of a district or area.

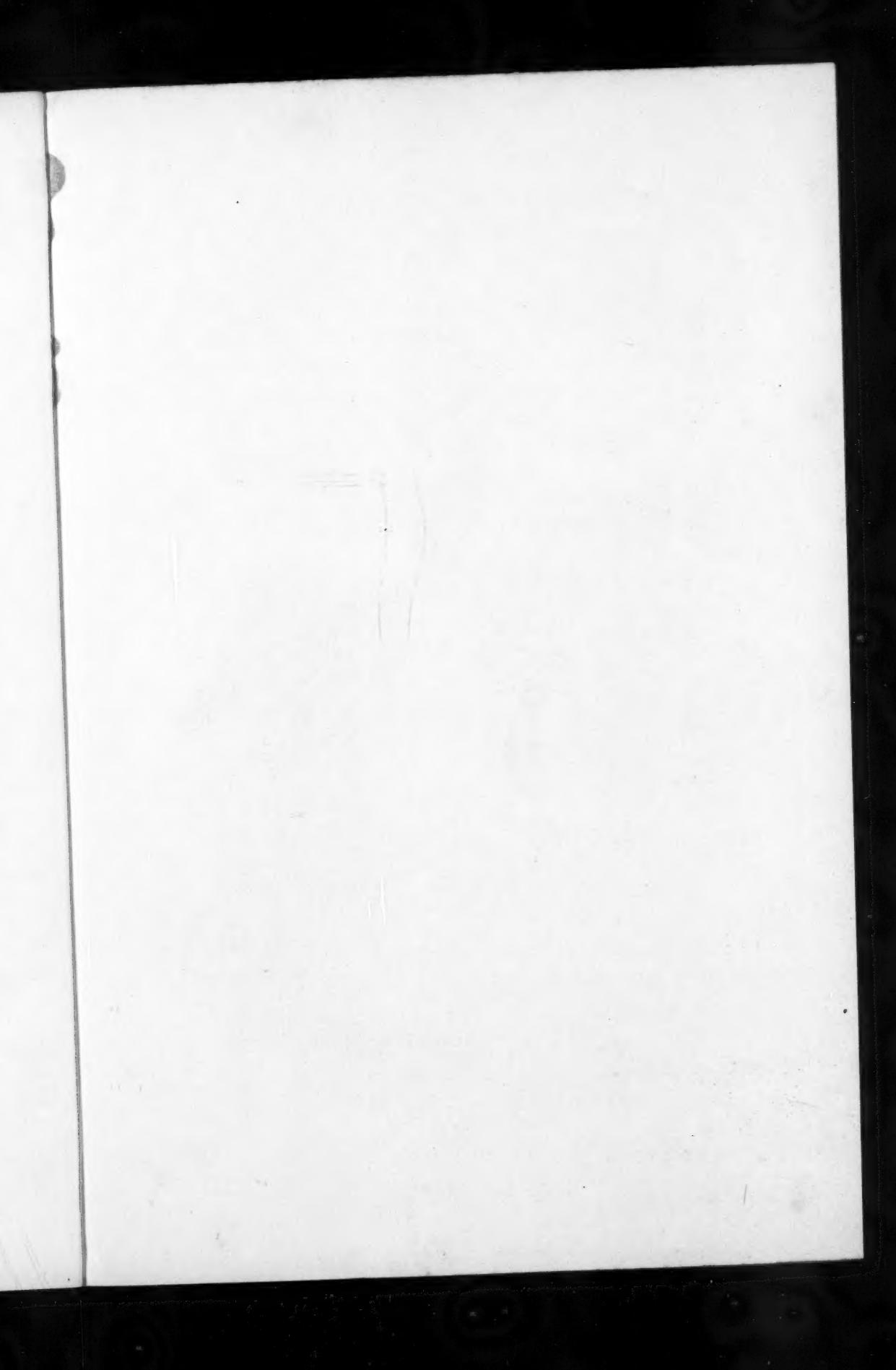
On being registered these representatives will receive a supply of cards stating the exact particulars which they are asked to fill in. When completed, the cards should be returned to the Secretary of the Royal United Service Institution, and the envelope marked "Colours" in the top left-hand corner. They will then be filed until sufficient information has been collected to warrant further utilization.

The ultimate object is to publish the Census in volume form, but this again must depend on the requisite financial support being forthcoming.

It is particularly desirable that, whenever possible, cards should be accompanied by a good photograph of the Colour or Standard, as it exists to-day. To be of value this must show the Colour extended and not hanging in folds. The following Member, in addition to those whose names appeared in the November JOURNAL, has been good enough to volunteer his services:—

Captain C. G. T. Dean, Royal Hospital, Chelsea.

Additions.





**ROBERT, LORD CLIVE
A FOUNDER OF THE INDIAN EMPIRE**

*From a statuette, modelled and presented to the Institution by
Mrs. Geraldine Thomas*

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[Authors alone are responsible for the contents of their respective Papers.
All communications (except those for perusal by the Editor only)
should be addressed to the Secretary, Royal United Service Institution.]

**THE FUTURE OF THE FIGHTING SERVICES IN
INDIA**

By MAJOR B. C. DENING, M.C., R.E., p.s.c.

THE future of the fighting Services in India is governed by certain factors which require examination before it is possible to investigate questions of organization and control. Thus it is necessary first to consider the form of government which, as matters stand, it seems likely that India will have. Next, the normal treatment of defence problems as between one part of the Empire and the Mother Country requires special consideration with reference to India. Thirdly, there are conditions peculiar to India, in connection with her unique mixture of races and states, which are vitally important and cannot be omitted.

THE FUTURE FORM OF GOVERNMENT

The discussions and negotiations of the past few years, terminating in the first Round Table Conferences, have left the impression that India will *in time* have a form of government similar to that of the Dominions. Nevertheless, it has been made clear that the form cannot be quite the same, because India is not homogeneous, and in many other respects, differs greatly from the Dominions. As a result of these differences Britain has found it necessary to insert, at least temporarily, reservations and safeguards in the proposed new constitution ; but the ideal aimed at is definitely the sovereignty of an independent Dominion for India, as far and as soon as possible.

For the time being, however, foreign relations and defence are to be subjects reserved for decision by the Imperial Government. Yet there

is clear recognition, both in the Report of the Simon Commission and in the records of the first Round Table Conference, of the obligation to raise purely Indian forces capable at least of sharing in defence responsibilities. The effect of these contrary requisites as far as defence forces are concerned is that, as long as defence remains a reserved subject, an instrument in India for the furtherance of the policies of that subject must exist under direct Imperial control. Again, in order to give India a chance eventually to take over her share of defence, a second instrument must be fashioned. In other words, to meet the new constitutional situation, two defence organizations side by side are necessary. This is the first condition of future organization and control.

As regards the details of the future form of government in India, a central Federated Government is forecasted, with Provincial Governments in the Provinces and Indian States, to which it is proposed to grant a large degree of autonomy.

NORMAL DIVISION OF RESPONSIBILITY FOR DEFENCE BETWEEN BRITAIN AND THE DOMINIONS

In the earliest days of the British Empire, Britain was responsible for the whole of Empire defence, both on land and sea. But, as our overseas territories developed, each in turn commenced to contribute to defence, first with local militia, then with contingents for overseas wars, and at length with whole armies in the Great War. As a Dominion arrived at maturity, the Imperial garrisons within its borders were withdrawn, until the present situation has been reached in which each is responsible for such defence measures as are local and peculiar to its position in the world, while the Home Government still accepts responsibility for the measures necessary for the security of the Empire as a whole, as well as for Britain's home defence.

As the Dominions become stronger and richer in relation to Great Britain, their share of the burden of defence should become greater and that of the Mother Country less. To-day, Australia provides her own forces for internal security, coast defence, defence of local waters with light naval craft and local air defence; and to some extent similar arrangements exist in the other Dominions. But Britain still provides the fleet which is the ultimate measure of the Dominions' independence and which secures their overseas communications.

The application of these principles to India means that the Imperial Government should be responsible for protecting her against external world dangers, while she should provide her own protection against what may be termed local dangers. More specifically on land, Imperial forces should have the function of the defence of India against attacks by foreign powers, while Indian forces should have that of meeting internal

disorder and the attacks by the independent tribes along her borders. On the sea and in the air, Britain should provide for the security of communications up to the local waters and air of India, whereas India should possess coast defence and local air defence. Some such line of demarcation between the duties of the Home and Indian Governments is plainly visualised in the Simon Report,¹ and it is the second of the main factors governing the future of the defence forces of India.

CONDITIONS PECULIAR TO INDIA

Size of Population.

India cannot, however, be treated from the defence point of view any more than from the constitutional point of view exactly as one of the other Dominions. To begin with there is the size of the population : the responsibility for defence is far greater in a country of hundreds of millions. That part of defence which relates to internal security cannot be lightly handed over to small or poorly organized forces with a people of such size. The effect of this condition must be to delay the period at which this part of defence can be transferred, and to demand a much larger and more efficient army from India than was necessary in other existing Dominions before any transfer can take place.

Races and Religions.

The second peculiarity of India is the presence of a great number of races and religions. This question did not arise in the case of Australia and New Zealand, but in Canada the presence of English and French, and in South Africa the still more difficult problem which existed between English and Dutch necessitated an Imperial garrison remaining until the inter-racial difficulties had been solved. The moral of this in India is that, with not two, but innumerable races, an impartial force to keep the peace is extremely important, especially as religion also enters so much into the picture. Further, the Mother Country has always felt it a duty to ensure that minorities, apart from races, should have fair play. In India, with so many helpless minorities, this duty is greater than ever. So again we see that, because of these peculiarities, the Imperial forces in India must remain, and remain large enough, until it is clear that a strong and impartial implement exists to take their place.

Location of Fighting Races.

A third point relating particularly to India is that her fighting man power is not equally distributed amongst her millions. In the Dominions a feeling of security amongst all sections of the people has been obtained by raising defence units equally in North, South, East, and West. In India this has not, so far, been possible. The Simon Reports show

¹ Vide "Report of the Indian Statutory Commission, vol. II, Pt. V."

that, of the 158,000 forming the present Indian Army, 86,000 come from the Punjab, 19,000 from Nepal and 16,500 from the United Provinces, leaving only 23 per cent. for the whole of the rest of India. Under such an Army security for great masses of the population might rest solely upon the reliability of the soldiers of a different race and religion. This state of affairs further complicates the transfer of internal defence.

The States of the Indian Princes.

A final feature of India is the existence in her midst of the extensive and powerful States of the Princes. These are entirely independent of the rest of the country and of each other, and they are related to the British Empire only by their individual allegiance to the King-Emperor. By the terms of their treaties with Britain, the latter is under a moral obligation to maintain their integrity. At the Round Table Conference, however, the Princes made a unique contribution in agreeing to join a Federation of India. But, as far as defence is concerned, there remains, at least to begin with, the duty of the Imperial Government of ensuring that the Princes receive fair treatment. In addition some scheme for the co-operation of the Indian States Forces in the defence arrangements of the Federation is necessary.

The various factors governing the future organization and control of the Services in India may, therefore, be summarised as follows:—

- (a) As long as the subject of "defence" is reserved, Imperial defence forces must remain.
- (b) India must be helped as soon as possible to provide her own defence forces.
- (c) Imperial defence forces must remain responsible for all time for external defence, i.e., problems arising out of threats or aggression by foreign Powers, and security of communications by sea and air.
- (d) India should be responsible for all defence local to India, i.e., frontier tribal problems, internal security, coast and local air defence.
- (e) In the construction of India's new Army, account must be taken of—
 - (i) The size of the population;
 - (ii) Races, religions and minorities;
 - (iii) Distribution of the fighting races;
 - (iv) Existence of the Indian States.

THE PRESENT SITUATION

The defence of India is organized and controlled at present as follows:

Naval Forces.

Indian waters form part of one of the large naval areas into

which the world is divided for purposes of Imperial Defence. The Royal Navy is represented by the East Indies Squadron under a naval Commander-in-Chief. In addition there is the Royal Indian Marine, with a Rear-Admiral as Flag Officer Commanding and Director, for local naval duties.

Military Forces.

The military forces are organized into British Regular Army (61,000), Indian Regular Army (158,000), Auxiliary Force, India, (35,000), Indian Territorial Force (20,000), and the Indian States forces. With the exception of the latter which are the private forces of the ruling Princes, all the above are, through the channel of the C.-in-C. in India, H.E. the Viceroy, and the Secretary of the State for India, constitutionally controlled by the Imperial Government at Home.

Air Forces.

The air forces in India are organized into four Bombing and four Army Co-operation Squadrons. They come under the orders of Headquarters, R.A.F., India, and, through the same channels as the Army, are imperially controlled.

The problem, then, is to ascertain how far the above arrangements require modification in order to meet the ruling conditions of the future.

FUNCTIONS AND SIZE OF THE FUTURE DEFENCE FORCES

The future functions of the forces in India, however organized and controlled, will, taken as a whole, be the same as they are to-day. The total size of these forces should therefore be closely related to the size of those now existing, unless the present strength is overestimated, or the danger to be guarded against should become materially less.

As regards the present strength, in view of the decade of painful retrenchment that has just been experienced, it is unlikely that the forces are over large. Further, the argument sometimes advanced that India to-day maintains a reserve not required for her defence but for Imperial and external purposes is quite incorrect. The size of the forces in India is determined, on the advice of the C.-in-C., by the Government of India. That Government has to find the money; so, on the face of it, it is highly improbable that a reserve, other than for India's own use, would be tolerated. From the Simon Report it appears that the very critical members of that Commission were quite satisfied upon this point. It is true that in the past India has found overseas expeditions, but this was due to the accident that, at the time, certain of her own dangers were not threatening, and that her forces were nearer than any others to the required spot.

As regards the possibility of a reduction in the dangers which threaten India ; the chief of these are the threat from external foreign Powers, the attacks by frontier tribes, and internal disorders requiring troops in support of the police. In connection with all three there has been definite and recent evidence that, far from an era of greater security having arrived, the problems are as formidable as ever.

The new organization for India must therefore comprise, in the total, forces at least equal in power to those which now exist.

CHANGES IN ORGANIZATION AND CONTROL

It is simplest to consider one by one the governing factors already summarised and to examine the effect of each upon future organization and control. The first of these is the need for Imperial forces in India as long as defence is a reserved subject. The inference to be drawn from this condition is that, during the period referred to, Imperial forces¹ are still *mainly* responsible for all defence functions. During this time, then, control must remain reserved in the final degree in all important matters in the hands of Imperial authority, e.g., H.E. the Viceroy and his C.-in-C. This condition does not, however, totally eliminate some measure of devolution of control in smaller defence matters to Indian Legislatures, both Central and Provincial.

As regards organization during this period ; the Imperial authority will on the whole require what it has now. Gradually, however, as its lesser duties are perhaps taken over by newly raised, purely Indian, local forces, it is conceivable that the organization of the Imperial forces could be changed, to show a reduction, and a concentration more in consonance with the tasks remaining.

The next condition of the future as described is that India must be helped to defence of her own. As far as control is concerned, a move towards this condition can be made by giving Indian officers, who show themselves competent, a share in the control of Indian sections of Imperial forces, whether naval, military, or air, on staffs and even in commands.

A suggestion was made at a recent meeting of the Indian Sandhurst Committee that a whole division of Imperial troops should eventually be Indianised. If this is carried out, it will enable Indian officers to be educated in controlling forces, and will show how far they can do the work.

Admittedly it has not yet been proved that there is a class which can provide the types of officers required in sufficient numbers, but the present Indian officers, risen from the ranks of the fighting races, have

¹ Imperial forces, as shown later, may comprise Indian as well as British units.

proved that they have the courage, while the Indian civil services have shown that there are the brains and the integrity in existence. At the Round Table Conference Britain gave an undertaking to try in time to evolve, through an Indian Sandhurst, what amounts to a combined product of the two.

Changes in organization can help on India's own forces in so far as, at the earliest stage, they provide for the raising of purely Indian local forces and for the devolution of duties to them.

We have seen that the third factor which governs the future is that for all time the defence of India against external dangers will be the duty of Imperial forces. This means that, even if India attains full responsible Government, such as Australia enjoys, it will be necessary for Imperial forces to protect her, just as the British Navy, Army and Air Force still protect Australia. Their location, organization and control are matters of strategy and convenience rather than of principle. For instance, in the case of Australia, the chief protection required happens to be naval, but the principal naval forces which provide that protection are not based in Australia itself. In the case of India, as far as the Army and Air Force are concerned, the most efficient location is in Northern India. No change in the method of control of these forces from that of to-day is necessary. But as regards organization, the forces require to be changed to the size and composition most suitable for their external employment only.

The next condition is that India must *in time* provide for all local defence. This will involve extensive changes in control and organization. Take frontier tribal problems; it is probably best that each frontier province should have its own forces to deal with the dangers in its district, and should have control of them. As regards internal security, in most cases this should be entirely a provincial matter and again provincial control and organization of forces are indicated. Internal security within the Indian States is also a local concern for which the States will require local troops. Coast defence and local air defence, being matters affecting India as a whole, should possibly be controlled by the Central Federated Government, though the units required might be organized in the Provinces. In the case of the frontier defence and internal security forces some control by central authority for purposes of co-ordination is also necessary.

There remain the group of factors peculiar to India. It has been pointed out that on account of the size of the population, the variety of races and religions, and the necessity for safeguarding the interests of minorities, India's new forces must be strong and impartial. Strength can be obtained by organizing in sufficient numbers. Impartiality

can be assured to a certain extent by delaying the transfer of some of the control from the present British authorities until the impartiality of the new forces has been demonstrated. Further, in areas of mixed races and religions, an equitable treatment of affairs may be obtained by controlling the forces through a legislature or local council upon which all classes are represented, and by drawing commanders, staffs and troops as far as possible from all the communities involved. This may mean raising forces from non-fighting races ; but for purely internal security duties amongst similar non-fighting material, this may not be so vital. Obviously, the world-wide principle that each people, race, religion, etc., should maintain law and order amongst its own is one to be adhered to if possible.

Though the raising of forces from non-fighting races may be permissible for such special duties, their creation for defence against the frontier tribes would be inviting disaster. For this duty men from the fighting races would be essential, and where not available in Frontier Provinces, would need special organization by those provinces from outside, a reversion to the policy of older days, both in and outside India, of the employment of foreign mercenaries.

The new era should not call for much change in the control and organization of Native States forces. Their rulers may be found willing to contribute to the defence of India as a whole by organizing certain units for employment in certain eventualities under the Central Federated Government. Otherwise the troops of these States should fit into the picture by meeting all defence obligations within their borders.

THE SUCCESSIVE STEPS

The steps to be taken in organization and control fall into two groups, those required *during* the advance towards responsible Government and those required *after* it has been attained.

In the first group, the first step is the creation in the Provinces of the framework upon which forces can be built up. This consists primarily in finding officers. But it should include the building up of comparatively accurate plans as to the number of units required, their location, duties, composition by races, religions, establishments, equipment, etc. As regards finding the officers, an Indian Sandhurst is being organized, and with the output of the English Sandhurst and Kitchener College, an eventual supply of quite young officers is hoped for. In addition, however, senior officers and many of intermediate rank are needed. For many years, British officers will be required in key positions. These, however, will have to be obtained upon the clear understanding that they are not Imperial servants but the servants of the local Government, just as in the case of officers serving with the

Iraq Army. Some Indian officers could possibly be obtained by transfer from the Indianised portion of the present Indian Army. Clearly these first steps cannot be taken until the provincial legislatures have been composed under the new constitution, for to their defence sections will fall the chief work.

When once the framework has been created, a start can be made with recruitment and training. When these have proceeded satisfactorily, the time will have come for the transfer of the first, simplest responsibilities from the Imperial to the new local forces. Stage by stage, as local forces become fitted for their tasks, the whole of the internal security, frontier, coast and air defence duties referred to in previous paragraphs can be transferred—but not till then. As the successive transition stages are reached, control will pass in respect of the devolved responsibilities partly to the central executive, but mainly to provincial authorities. At the same time the withdrawal and the reduction of some of the present forces in India will be possible.

Since the new Army of India requires forces, and the old has some to dispose of, it would seem, at first sight that a direct transfer of units is indicated. But there are many difficulties facing this proposal. Officers and men are at present engaged on Imperial terms of contract, and even in Indianised formations this will be so. Many may be unwilling to serve under new masters. Except in the Provinces faced with frontier struggles and devoid of fighting races, it has been shown that locally raised units, representing in proportion the local communities, are required and not external fighting men. Except in a few special cases it will probably be necessary to disband existing Indian forces and to raise new ones. Some flow from the one to the other will in any case take place.

THE FINAL ORGANIZATION AND CONTROL

After the new Government has reached full responsibility, the final steps in reorganization will be necessary. This brings us to the question of the ultimate composition of the forces, particularly the Imperial forces, in India.

The functions remaining to the Imperial forces, as already described, will be defence against foreign Powers and the defence of Empire communications, both by sea and air. Now, of the forces in and around India to-day a definite proportion of the regulars exist for these functions. What that proportion actually is need be of no consequence here but the final Imperial forces should consist of that same proportion of the total regular naval, military and air forces. For purposes of discussion, let that proportion be assumed to be 40 per cent. of the existing Army, 60 per cent. of the R.A.F. and 100 per cent. of the Navy. The regular

military forces at present include 158,000 Indians and 61,000 British. For purposes of greater economy, and greater efficiency under certain conditions of climate and terrain, a somewhat similar proportion of Indian soldiers is desirable in the final Imperial force. At 40 per cent. this means that eventually the latter might contain about 25,000 British and 63,000 Indian regulars.

In addition to the regulars there are organized to-day the Auxiliary Force, India, (35,000) and the Indian Territorial Force (20,000). The first consists of Europeans and Anglo-Indians, and its present role is to relieve regular troops, in emergency, of internal security and garrison duties, but only in restricted local areas. In view of its history as a volunteer corps and of its usefulness, its abolition is to be deprecated. At the same time its position in the Provinces might be one of some delicacy. If, however, it was understood that it would only be embodied for defence against attacks from outside India, with fresh terms of service as regards liability, the A.F. (I) might be suitably reorganized for use in campaigns, particularly on the lines of communication. The Indian Territorial Force acts as a second line to the Indian Regular Army. To the extent that it is required to feed the reduced Indian regulars its retention would seem desirable. Both forces would of necessity be controlled by the remaining Imperial authority in India, i.e., the Commander-in-Chief.

Apart from the British C.-in-C., controlling the Imperial British and Indian troops, and possibly the A.F. (I) and Indian T.F., the writer visualizes a C.-in-C. of India's own Army, acting for the Central Federated Government, and provincial commanders of local forces acting under his orders.

As regards air forces, these are required at the present time mainly for action against frontier tribes—a part of defence which it has been suggested is a duty of the Provinces of India. The Provinces concerned should, therefore, form their own air forces, just as Iraq has recently done; these should be under the control of the commander of the provincial forces. Some Imperial Air Force will, however, also be required for action if need be outside India; this should be controlled as it is to-day.

On the naval side, the situation can hardly alter much. As the Royal Indian Marine grows, it may be desirable that, as in the case of existing Dominion navies, its control shall be placed under India's central executive, although it would still be working closely with the Admiralty and the Royal Navy.

RELATIONS WITH THE POLICE AND OTHER CIVIL FORCES

The police and other civil forces of the Crown will presumably be

the first to pass under the control of the new provincial legislatures when the latter are formed. There is, however, no reason why their relations, both with the existing Imperial forces while still present, and later with the new provincial forces, should not be almost identical with those in being to-day. The civil services are responsible in the first instance for dealing with problems of internal security as they arise. If they require assistance from the fighting Services, civil administrators of various grades are authorized by their Government to call upon corresponding military, air force or naval commanders for such assistance. The only difference will be that, during the years of transition, the civil authorities will be those of the new régime, responsible to Indian legislatures and the Indian peoples, while the fighting Services will still be responsible only to the Imperial Government and the British nation. The ordering into action of Imperial forces by a local government could never be permissible. At the same time the new local authorities must obviously be given the backing of the fighting Services if need be. The Simon Commission, in recognizing the chance of this difficulty arising, offers the solution that until Provinces have their own forces, every demand for the use of Imperial forces should be expressly authorized by the Governor of the Province, in his capacity as direct representative of the Imperial Government.

When India possesses responsible government, the occasions when it will be necessary to call upon Imperial forces for internal security duty should be very rare, as the transfer of full responsibility infers ability on the part of the new government to maintain itself. The civil services will deal with the new Indian forces much as they do with the fighting Services to-day.

CONCLUSION

This general survey of the future of the Services in India leaves the impression that problems of extreme difficulty have to be faced. It is clear, moreover, that correct solutions can only be found if all the factors in the Indian defence question are constantly before us.

With the best will in the world, transfer of even local responsibilities must be a matter of many years. The difficulty is essentially one of the officers. The material has to be discovered and a corps built up. At the present time it is not possible to be more precise than to say that in any nation this task would occupy an appreciable space of time.

A final conclusion is that the Imperial Government owes it to the weaker races of India, to the Indian Princes, even to the majority races and to the British peoples, to see that before *any* responsibility passes to the new defence forces of India, such forces are thoroughly examined and tested as far as it is possible to do so.

AN INDIAN NAVY IN THE MAKING

By LIEUTENANT-COMMANDER P. A. MARE, R.I.M.

TRADITION in any service is a valuable asset, and especially so in a sea service. Before discussing the future of our Indian Navy, it is appropriate, therefore, to give a brief history of the naval forces of that country and to show that the present day Service has tradition behind it.

In the year 1600 Queen Elizabeth granted a charter to certain merchants, shipowners and citizens of London to open trade in the East Indies. This "John Company" soon developed into the English East India Company which, in turn, marked the beginning of British rule in India.

In the year 1612 the Hon. East India Company settled in India at Surat. They came as traders, but as was the practice in those days, their vessels were armed. But they soon found that, without maintaining a naval force in local waters, they could not obtain security for their factories in the country, deal with the pirates who infested the Indian seas and also ward off the attacks of the Portuguese who were well established on the West Coast. The Portuguese at this time, it may be noted, claimed the whole right of trade with the East Indies as part of their sovereignty, and the Indian seas as their territorial waters.

The East India Company's Marine consisted of only four ships, but they were able to defeat the Portuguese, and this resulted in the Great Mogul recognizing the definite status of the Company as a trading corporation. They achieved a further success when, in 1622, their squadron, assisted by Shah Abbas, drove the Portuguese out of the Persian Gulf.

In 1688 the headquarters of the Company was transferred to Bombay when that island passed into British hands through Catherine of Braganza. This now became the headquarters of the Marine, and from that date the Service was known as the Bombay Marine.

During the XVIIIth century we find the Service continually fighting the pirates on the West Coast of India and in the Persian Gulf, or else engaged in the convoy of trade and transports.

Admiral Richmond in his latest book, "The Navy in India, 1763 to 1783," states "though the history of the Bombay Marine and the Indian Navy have been fully recorded in Commander Lowe's well-known and exhaustive work, some points deserve attention. We are apt to lose sight, in the struggle between the battle squadrons of Hughes and Suffren, of the work which has been done in other parts of the Indian Seas, particularly on the Malabar Coast by the Bombay Marine. It is due to the existence of that force that the operations against Hyder in Mysore were possible, that the Royal Squadron with its very scanty forces did not have to make detachments to the Malabar Coast, in the Persian Gulf and in the Malacca Straits where the Company's convoys were wholly protected by the armed ships of the Company itself, and that the Royal Squadron was not called on in any appreciable degree to support the operations in Bassein and Salsette."

In the XVIIIth century, it became the policy of the French Company to have large and more heavily armed ships, and this led to a gradual increase of armament in the Marine ships and in the East Indians themselves.

During the period 1810 to 1814 the vessels of the Marine took part in the capture of Bourbon and Mauritius and the conquest of Java from the Dutch. During the next ten years the Service was engaged in the reduction of Mocha, the suppression of the Josimi pirates in the Persian Gulf and the First Burmese war.

Its name was changed to that of the Indian Navy in 1830. About this time steam was introduced, and the "Hugh Lindsay," commanded by Commander Wilson, made a voyage from Bombay to Suez to demonstrate the feasibility of this route.

THE INDIAN NAVY OF 1858.

The officers of the original Indian Navy were recruited in England, entering as Midshipmen and passing through similar grades to those of the Royal Navy, the highest rank being that of Captain.

Amongst the appointments held in the senior grades were those of Senior Officer, Aden; Commodore, Persian Gulf; Commanding Officer, Indus Flotilla; Surveyor-General of Mesopotamia; and Forest Ranger of Scinde.

Roughly two-thirds of the ratings of the ships were European, and of these a number had seen service in the Royal Navy, but the principal supply came from the training ship "Warspite."

The ships included eight steam frigates of 6-10 guns and 1,000-2,000 tons, three steam sloops of 4-5 guns and 200 tons, two gunboats, two sailing sloops of 18 guns and 500 tons, two brigs of 10 guns and 258 tons,

and three steam transports of 4 guns and 1,000-1,200 tons. There were also a number of small tenders and craft for harbour and surveying duties. The Indus Flotilla consisted of seventeen vessels of between 200-600 tons, armed with 2 guns apiece.

At Bombay, the Headquarters of the Marine, there was a Parsee shipbuilder who had built many ships for the Service at Surat. He had been detailed to select a site for slipways at the new base, and this he did so successfully that a large number of ships and frigates were built both for the Bombay Marine and for the Royal Navy. The largest of these was the "Bombay," which was pierced for 110 guns. A dry dock, known now as the Old Bombay Dock, was constructed in 1763, and later two sections were added. This dock still exists, and is used to dock sloops and small vessels. It was in this dockyard that Pocock, Hughes and other naval commanders used to refit their squadrons. The Duncan Dock (700 ft. x 63 ft.) was built in 1810, and a few years later a steam factory was established, a large engineering staff being engaged.

At Calcutta, the dockyard of the Royal Indian Navy in Garden Reach boasted a dry dock capable of docking a vessel of 1,500 tons, and its building slips were always fully occupied with river craft.

Bassidu, or Bassidore, was the advanced base and headquarters of the Persian Gulf squadron. It lies on the island of Kishim, a sultry spot as the graves of many Indian Navy officers and men bear witness.

The old Indian Navy saw much service and took part in the New Zealand Expedition, the suppression of the Beni Yas Arabs, the Burmese War of 1852-1853, the Persian War of 1856-1857, the occupation of Perim in the latter year and the Indian Mutiny of 1857-1859. It co-operated with Peel's Naval Brigade at the Siege of Delhi.

The survey branch of the Indian Navy carried on the good work done by their predecessors of the Bombay Marine. In this, it received great stimulus during the ten years in which Sir Charles Malcolm commanded the Service. The "Hugh Lindsay" having demonstrated the practicability of the steam route from Bombay to Suez, surveys of the Red Sea were ordered. Markham says of this survey "the sea was practically unknown, and great dangers and privations were inseparable from such a service. The work was carried out in small sailing brigs, and was completed in four years in 1841."

Among many other surveys were those made of the Indian rivers. During these James penetrated into the heart of Asia, rediscovering the source of the river Oxus. Another survey was that made in the heart of unknown Arabia.

Sir Roderick Murchison, addressing the Royal Geographical Society in 1862, stated "The war services of the Indian Navy, as well as the beneficial and enduring results of its repression of piracy and the slave trade, are well known. These services have been varied, honourable and useful, but in the eyes of Geographers the widespread lasting utility of the excellent surveys made by the officers of the Indian Navy hold an equally prominent place."

As regards finance, it is interesting to note that the nett annual cost of the Indian Navy, together with the charges of the Bengal Marine, were roughly £400,000 per annum. When we consider that this included all charges connected with hydrographic surveys and the use of transports in the Burmese and other wars, we cannot say that it was excessive.

From a study of records and correspondence during the period the Indian Navy was in existence, it appears that the policy of the Indian Government in maintaining this Service was dictated by the following considerations :—

- (a) The consolidation of the Indian Empire from a geographical point of view.
- (b) The general policy of conquest pursued by the British Government.
- (c) The relative strength of Continental European Powers in and around the Indian Seas.
- (d) The activities of pirates in the Persian Gulf and Indian Ocean.

The influence of Suffren can also be traced in this policy ; for the fear of tardy or inadequate support on the part of the British Admiralty in time of stress was ever present.

The Indian Navy was not maintained to compete in any way with the Royal Navy, but for purposes of general utility and as a safeguard. Why, then, was it abolished ? The following seem to have been the principal reasons. Direct rule over India was assumed by the British Crown. The advent of steam provided greater security for trade ; while the project of the Suez Canal would shorten the sea communications with Great Britain. Moreover, after forty years of peace, the British Empire was at the height of its power and had little to fear at sea from other nations. Added to all this was the question of expense. In point of fact, however, a sum of £70,000 was to be paid annually to the Admiralty for the naval protection of India, and in addition there was the cost of the Bombay and Bengal Marines and of the Survey Service, so that the total cost to India was very little diminished.

THE ROYAL INDIAN MARINE.

The period which lies between 1862 and 1928 can be dealt with very briefly. The Bombay Marine, the veriest remnant of the Indian Navy, was maintained as a transport service. In 1871 the Indian Defence Squadron was formed. This was manned partly by the Royal Navy and partly by the Indian Marine.

In 1877 Captain Bythsea, V.C., R.N., reorganized the Service, set the Survey Branch on its legs once more and defined the duties of the Service under the title of Her Majesty's Indian Marine. These duties were the transport of troops; maintenance of station ships at outlying ports; maintenance of all Government craft; and marine survey.

The Marine Acts of 1884 and 1887 provided for the taking over of ships and personnel by the Admiralty in cases of emergency. Marine ships were constructed with a view to their becoming auxiliary cruisers in time of war, and they were provided with guns. The policy of the Indian Government was to maintain the Indian Marine as part of India's contribution towards war, and further to ensure that she had at hand a body of officers experienced in transport organization and the administration of Indian ports. This policy was justified, as R.I.M. officers accompanied all expeditions which took place in Indian or China seas.

In the late war 60 per cent. of the officers and all the crews were under the White Ensign, 30 per cent. accompanied the various Expeditionary forces, whilst the remainder were at the Indian ports supervising the fitting out of transports, routeing and port administration generally. It is an interesting fact that the only theatres of war in which our officers did not serve were North Russia, the Cameroons and Tsingtau.

We see, then, that with the abolition of the Indian Navy in 1862, India ceased to have a combatant naval force. After 1884, however, the personnel and ships were called upon to carry out combatant duties in strained relations or in war. This surely was a strange anomaly; a non-combatant service in peace and a combatant service in war.

Having dealt with the various naval and marine services of India from the year 1862 until 1928, let us briefly examine the steps which are being taken at the present moment to rebuild an Indian Navy on modern lines. In doing so it is as well to recall that the Committee under Admiral Sir Roger Keyes, which sat at the Admiralty on this subject in 1924, stressed the importance of the future force as a *combatant sea Service*. Moreover, they emphasised that it should not be tied to the ports of India, but that every opportunity should be given to the ships to spend the maximum possible time at sea.

Its duties were defined as follows :—

- (a) Training of personnel for service in war.
- (b) Services required by the Indian Government in the Indian Ocean and Persian Gulf.
- (c) The organization of the naval defences of Indian ports.
- (d) Survey work in the Indian seas.
- (e) Marine transport work of India.

In 1928, with the re-organization of the Royal Indian Marine, a Bill was introduced in the Legislative Assembly with the object of changing the name of the Service to the Royal Indian Navy. This Bill was defeated by one vote, so the old title has been retained, although the character of the force has been altered.

PERSONNEL.

Officers.—The normal method of entry for executive officers is similar to the Special Entry of the Royal Navy. Examinations are held periodically ; thereafter the Cadets serve one year in H.M.S. "Erebus" and one year in the Royal Navy and Naval Shore Establishments as Midshipmen. In addition a certain number of Europeans have been commissioned direct from the Merchant Navy, while a number of Indians are being taken as Cadets from the Mercantile Marine training ship "Dufferin" after passing an examination similar to that required for entry to the Royal Navy from the "Conway," "Worcester" and Nautical College, Pangbourne.

For the engineering branch, Europeans are commissioned direct, admission being limited to candidates who have undergone five years' engineering training in a recognized engineering firm or Government dockyard in the United Kingdom. Some Indians have been admitted in the same way, but the normal method of recruitment of Indian boys is similar to that for the Executive branch. Successful candidates are sent to the United Kingdom to undergo five years' training, normally in private engineering firms. On successful completion of the training they are commissioned to the R.I.M. as Engineer Sub-Lieutenants. All Engineer officers on appointment undergo a short course of training under the Admiralty before proceeding to India to join the Service.

Boatswains, Gunners and Warrant Telegraphists are ex-R.N. Petty Officers ; Indian Boatswains are promoted from the lower deck.

Assistant Surgeons who act as the medical officers in our ships are seconded from the Army.

Senior Writers from the Writer Branch are of mixed descent.

Perhaps one of the most important duties of an officer on arrival in India is a study of Urdu, as although all orders are given in English

it is essential that he should have a good command of the language spoken by the ratings. The Preliminary Examination is the one he has to pass, which may be looked upon as a stepping stone to a more advanced study of the language.

Ratings.—As has been said, the old Indian Navy was manned by mixed crews. To-day the Royal Indian Marine is manned entirely by Indian ratings. This is the policy of the Indian Government, and their reasons may be enumerated as follows :—

- (1) It makes for its popularity that a naval service should be manned largely by its own nationals.
- (2) The fact that the Indian Army has proved itself to be a fighting force of very great value in tropical and sub-tropical theatres of war.
- (3) The great difficulty of accommodating mixed crews in small ships, coupled with questions of food and general living conditions.
- (4) The question of expense, pay, allowances, leave and pensions.
- (5) Lastly the language problem ; this is not really such a serious bar as might at first be supposed, and no great difficulty was found in this respect in our ships during the late War.

Up to 1928 our ratings were entirely recruited from the Konkan district on the West Coast of India, some 150 miles South of Bombay. These men are of mixed descent with a very strong Maratha strain, a fighting strain, and for centuries they have manned the ships of our Service. They are Mohammedans. As seamen they are excellent, though short of stature and of moderate physique. In the past they were largely uneducated, but with training they have proved themselves intelligent, and make good signalmen.¹ This area, however, had been largely over-recruited for many years, especially during the War. We were, therefore, forced to seek fresh fields. After very careful deliberation, the Punjab was selected ; an area lying between the Indus and Jhelum rivers, flanked by the snow-clad hills of Murree on one side and the Salt Range on the other. This may be looked upon as a bold step, as the boys of course have never seen the sea, it being some 1,500 miles distant from their homes ; but it has provided an ideal recruiting ground. Here are found the martial races, commonly known as "P.M.'s." ; they are hardy, of good physique, intelligent and essentially fighters. They are divided into tribes with proud lineage and military tradition.

¹ Fourteen were taken by Lord Jellicoe in H.M.S. "New Zealand" for a period of four months during her post-war special service cruise.

Batches of fifty are recruited every six months, or in accordance with the drafting requirements, when an officer with a recruiting party visits the districts. The response is phenomenal; on the last occasion I visited this part no less than 800 applicants appeared for 50 vacancies.

Training.—Recruits enter at the age of sixteen and enrol for a period of eight years, and thereafter for three year periods. On arrival at Bombay they commence their training as Boys, the first period of eighteen months being spent in the training ship "Dalhousie," and the last six months at sea. The period of service as an Ordinary Seaman is at least three years, as we feel that a full five years' service is necessary before a seaman can be considered an Able Seaman in the real meaning of the term. Thereafter their promotion is in all respects similar to that in the Royal Navy, and examinations are held for substantive and non-substantive rating. For six months after recruitment, boys all work together; after that period they are split up into seamen, stoker and signal classes, the choice of branch being left as far as possible to the boy. A recent report from India states that Punjabi Mussulmans are doing exceptionally well, and have proved quite good afloat.

Schools.—Gunnery, Signal, W/T and Stoker Schools are situated in the dockyard in Bombay, and a steady flow of ratings is continually passing through them. Each is supervised by a European officer with an Indian instructional staff.

Uniform.—Up to 1929 the uniform worn by ratings consisted of a blue frock and baggy trousers, surmounted by a blue stocking cap with the usual ribbon. It was not popular, so the Viceroy was approached on the subject, with the result that naval uniform was approved and supplied. The men are immensely proud of their new uniform, and it has, perhaps, done more than anything else to raise their status and morale and incidentally those of the Service.

Loyalty and Morale.—We must not forget that India has seen many dynasties wax and wane within its borders, and all have left their mark for good or bad; but throughout her long history she has never enjoyed the blessings of internal and external peace for such a long period as under British rule. She has had a just and firm rule and has appreciated it, and loyalty in India will always be shown and given wholeheartedly to a strong and firm administration.

As regards the personnel of the R.I.M. they are entirely loyal; this applies to the West coast of India and the Punjab elements. We are naturally asked questions at times which are hard to answer, but we welcome them, as it gives us an opportunity to point out that loyalty, trust and stout hearts are the prime essential of a naval service, and that the first works upwards and downwards throughout all ranks.

During the whole history of India's naval forces the behaviour of the Indian portion of the crews has been exemplary. In the Great War, although they had no naval training, they were steady under fire. This was noticeable in the landing and cutting-out operations in the Red Sea and in the Mesopotamian Expedition.

Of our Punjab ratings 90 per cent. are descended from soldiers of the Indian Army. Their morale is high, and fighting appeals to them. To develop morale we encourage games and sports, especially those of a team nature.

The White Ensign.—The White Ensign was hoisted with due ceremony on 11th November, 1928, by ships of the Royal Indian Marine. The Blue Ensign with the star of India in the fly was retained as a jack. The Red Pendant—the old Indian Navy pendant—which was restored to the R.I.M. in recognition of its services during the Great War, was superseded by the White Pendant of the Royal Navy. This change was cordially welcomed and deeply appreciated by all in our Service and in India generally.

MATERIAL.

At the present moment the ships of the R.I.M. are as follows :—

4 Sloops ; the latest—the "Hindustan," an enlarged "Folkestone"—arrived in November, 1930. She has proved satisfactory in all respects. All are armed with two 4-inch semi-automatics and two 2-pdr. pom-poms, and have a speed of 14.16 knots. All, except the "Cornwallis," are fitted as minesweepers and are oil burners.

2 ex-R.N. patrol boats (P.C.s) ;

2 Survey vessels ;

6 Minesweeping trawlers ; and a number of tugs and harbour craft.

BASES.

Bombay.—Reference has already been made to this base. The dockyard has been developed greatly since the War, when its resources were strained to the utmost. Space is naturally a limiting factor as it is situated in a very congested area. Speaking broadly, however, the yard is well planned and the work carried out there is of a high standard. Certain of the Persian Gulf sloops have carried out half-yearly docking and refits there, but I understand Colombo is preferred, as the ratings can go to Diatalawa which is more desirable than its counterpart, Deolali.

The harbour is admirable in many respects, except perhaps during the S.W. Monsoon months. The man-of-war anchorage is conveniently situated near the dockyard, but heavy ships have to lie in the centre of the harbour in some six fathoms of water.

The Alexandra Dock is very suitable for fitting out transports. The Hughes Dry Dock will take ships of the "Iron Duke" class.

The climate is on the whole good, though perhaps enervating after a prolonged period ashore.

Ships of the R.I.M. are based on Bombay during the N.E. Monsoon.

The Administrative H.Q. is situated inside the dockyard closely adjoining the H.Q. Mess.

Karachi.—During the S.W. Monsoon Karachi is used as a training base. It is very suitable in all respects. There is practically no rainfall, but Monsoon conditions prevail outside the harbour entrance, ensuring real "sea conditions."

OPERATIONS.

Exercises are carried out annually with the cruisers of the East Indies Squadron; they are usually of the "convoy" type. Patrol and searching exercises take place off the West coast of India, in addition to gunnery and minesweeping practices. In November the annual combined exercise with the Staff College is held at Quetta and in the vicinity of Bombay.

All ships cruise either in company or singly in the Arabian Sea or the Bay of Bengal for four or five months of the year. Any duties of a political nature required by the Government of India are then undertaken. These cruises are of great value as they familiarize the personnel with the general conditions of sea, weather, shipping and harbours around the coast of India.

SURVEY WORK.

Survey vessels are on their stations for roughly seven and a half months of the year, the remaining period being spent by the officers in the Nilgiri Hills, when the season's work is plotted and charts constructed.

Among the recent surveys are the Maldives, the Chagos Group, the Nicobars, the Gulfs of Cutch and Cambay, the Gulf of Martaban, and the Mergui Archipelago. Certain of these were done at the direct request of the Admiralty.

ADMINISTRATION.

The Service is administered under the Indian Marine Acts of 1884 and 1887. These are akin to the Naval Discipline Act, and read in conjunction with various Orders in Council, form an effective basis on which the R.I.M., reorganized as a combatant service, is administered.

The Viceroy's Council resembles the Home Cabinet, and in this the holder of the Marine Portfolio is analogous to the First Lord of the

Admiralty. The Commander-in-Chief, India, holds the Marine Portfolio in his capacity of Minister of Defence, and not by virtue of his being head of the Army in India. The Secretary to the Government of India in the Marine Department is perhaps analogous to the Parliamentary Secretary and Secretary to the Admiralty. He is a Civil Servant.

The Financial Adviser to the Commander-in-Chief, India, for Army and Marine is connected with the Member for Finance, who is analogous to the Chancellor of the Exchequer.

The Flag Officer Commanding has very large individual powers over the Service, such as movements of ships and appointments of officers and men. Promotion of officers and shore appointments are made by the Government of India on the recommendation of the Flag Officer Commanding. He has the right to appeal in person to the Viceroy if he is not satisfied with orders, rules and regulations made by the Government. This right was only introduced with the reorganization, and is of immense value to the Service. The Flag Officer Commanding ranks in India with the Air Vice-Marshal Commanding the Air Force in India. He is also the Principal Sea Transport Officer, East Indies.

His administrative headquarters are at Bombay, and the various departments include :—Operations ; Dockyard Administration ; and the Depot, in which are embodied the Drafting, Maintenance, Training Ship and Schools. The Engineer Manager's Department is responsible for all works in the ships and dockyard.

THE FUTURE.

Every opportunity is given to Indians to see the Service both at work and at play, and they are very well impressed with the R.I.M. of to-day. Our aim is to form an efficient naval force for the defence of the country, and we are endeavouring to build on a sound and lasting foundation. We have tradition behind us ; the history of past wars and in particular the late War.

The naval activities of the various Dominions are closely watched. Among the many new problems which face our Empire to-day those of special concern to us are the great and growing importance of the trade of India ; the extension of British naval policy in the Far East ; and the number of new ports which have been recently opened on the Indian coast. The latter, although they offer facilities for warships, require adequate protection, and in this connection we have to bear in mind the development of modern weapons like the submarine and mine.

India, with her rapidly growing population, is becoming more and more dependent upon intercourse and trade with the outer world. Her

vital economic interests are therefore becoming increasingly linked with sea power.

We aim at a force of six sloops and eight minesweeping trawlers, with a personnel of some 1,600 officers and men. Included in this total are the officers of the Transport Department and the Surveying Branch.

The formation of a Volunteer Reserve has been outlined in order that India shall bear her fair share of coastal defence, but, due to financial considerations, its institution is at the moment impossible.

No difficulty is anticipated in training ordinary civilian crews of auxiliary vessels in war time to carry out minesweeping work, provided that there are available trained officers of a R.I.M.V.R.

CONCLUSION.

In conclusion, I would like to remind you that no matter how well defended India may be on her land frontiers, her security ultimately depends upon the safety of her sea communications and coastline. It will be the primary role of India's Navy to afford protection to her ports and to shipping in local waters.

The duties of the East India Squadron lie in a wider, and perhaps more spectacular, field, but the security of the Indian seaboard must be assured; this will be the duty of the Royal Indian Marine or perhaps later under its new yet old name, the Indian Navy.

SOME REFLECTIONS ON MODERN MILITARY TACTICS¹

By MAJOR R. MACLEOD, D.S.O., M.C., R.A., p.s.c.

I. THE EFFECT OF RECENT SCIENTIFIC DEVELOPMENTS

MODERN armies are undergoing a mechanical revolution similar in many respects to the industrial revolution of the XVIIIth and XIXth centuries. Machines are becoming the basis of power and can perform, not only many of the functions previously undertaken by men and horses, but several beyond their scope. Strengths of forces can no longer be reckoned in " bayonets," " sabres " and " guns," since the fighting efficiency of a small, mechanically armed and propelled force, may be many times greater than that of a much larger but worse armed and more slowly moving body of troops.

The chief directions in which these changes have taken place are :—

- (a) A great increase in the proportion of automatic weapons ;
- (b) An increase in the numbers, variety and efficiency of armoured fighting vehicles ;
- (c) More general use of and improvements in " radio " ;
- (d) Increase in air power and ability to attack by night as well as by day.

These developments have given rise to considerable changes in our tactics, of which the following are some of the broad effects :—

- (a) The machine, and not the man, has become the dominating feature on the battlefield—in the attack the tank, and in defence the machine gun ;
- (b) Operations can take place at much greater speeds ;
- (c) Frontages and depths, both in attack and defence, have greatly increased ;
- (d) The resisting power of small forces has been considerably raised ;
- (e) All round defence, embracing the services in rear, against armoured fighting vehicles is now necessary ;

¹ Compiled from Notes taken on Manœuvres, Exercises and Staff Rides during the past two years at H.Q., Meerut District, India.

- (f) Large concentrations of troops, either on the march or at rest, are no longer safe ;
- (g) Penetration in the attack is more difficult ; for any salient is liable to heavy enfilade fire by machine guns on both flanks (see Fig. 1). Since the effective range of a machine gun is 1,500 yards, the breach must be considerably more than 3,000 yards wide to give the assaulting troops room to manoeuvre, and forces will endeavour more than ever to envelop the enemy;

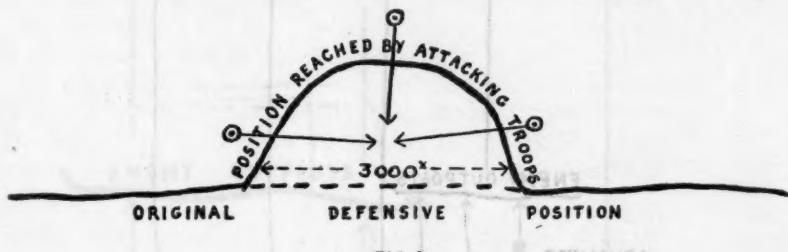


FIG 1

GODHAYOGA

- (h) Communication and co-operation with and between detached forces is more certain ;
- (i) Fire-power can be more easily concentrated on the battlefield ;
- (j) Reconnaissances can be pushed wider and deeper, and so the risk of surprise is reduced.

II. ADVANCE, ATTACK AND PURSUIT

I. THE COLUMN. (SEE FIG. 2)

- (a) At first sight it appears attractive to organize a force into fast and slow moving groups, and to send the fast-moving group forward to drive in the hostile outposts. But this course violates the principle of "economy of force." The fast-moving troops may become involved in a battle, and defeated, before the arrival of the remainder of the force ; or the latter may be attacked while the more mobile troops are away.
- (b) The advance of a force in one or two large columns has serious disadvantages :—
- It is an easy target for air and long range artillery attack ;
 - It takes a long time to deploy. Delay is experienced not only in "brushing aside" the hostile covering troops but in preparing for the battle, and it may be impossible to attack

the enemy's main position on the same day. He is thus given time to readjust his dispositions and strengthen his defences;

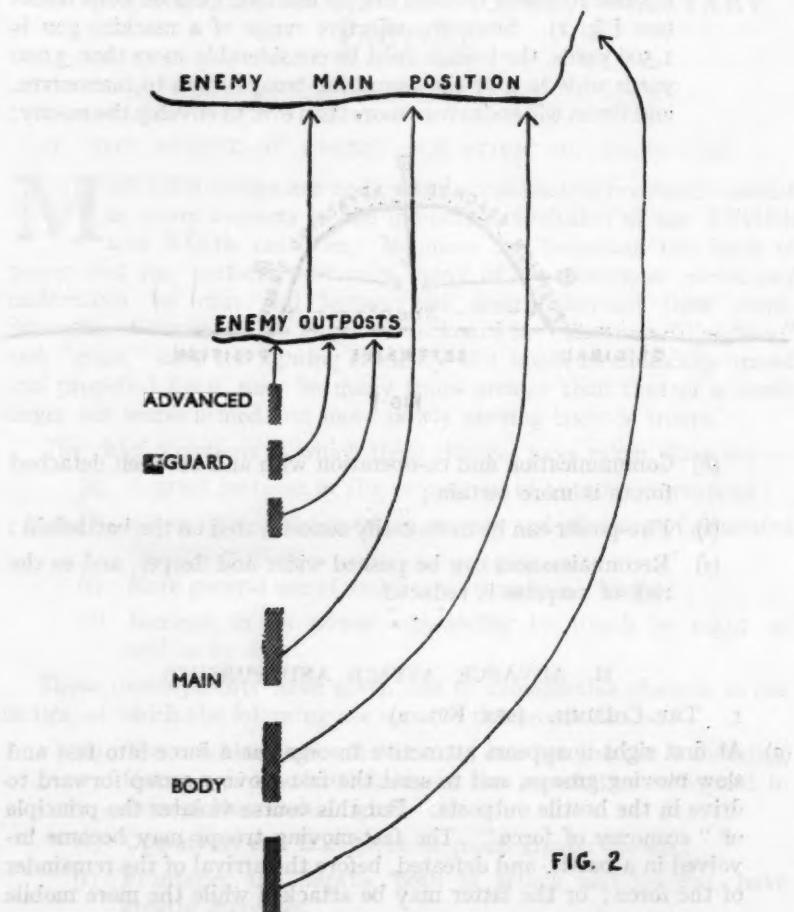
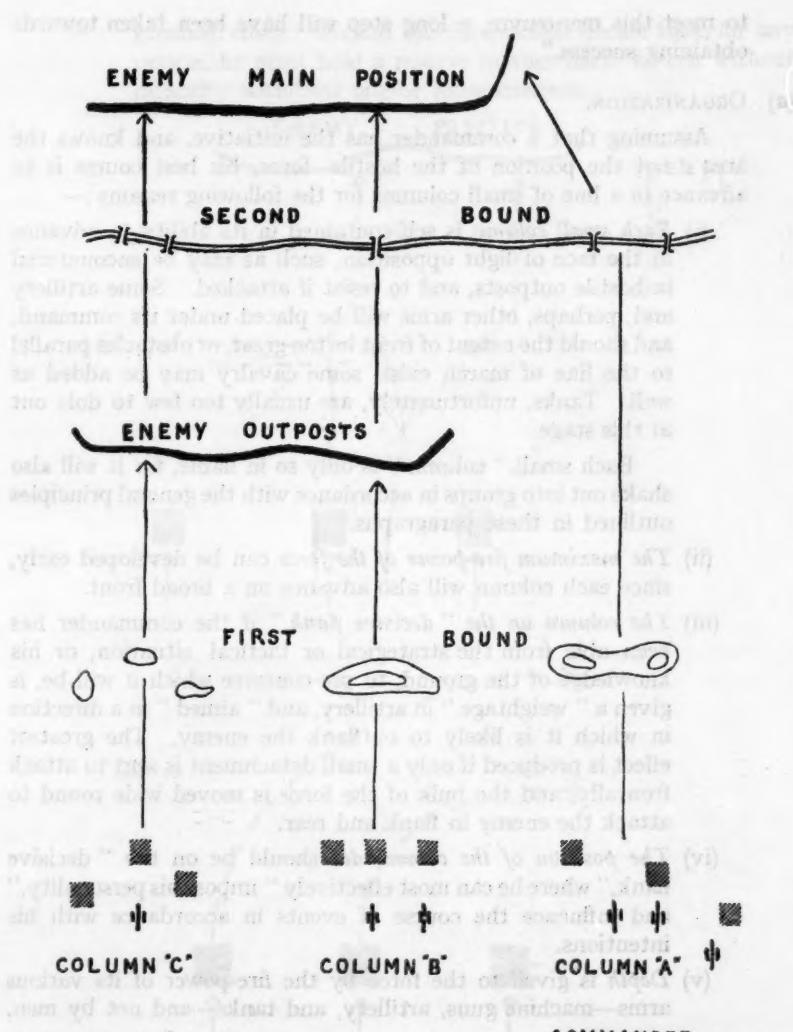


FIG. 2

- (iii) Its full fire effect is only developed slowly. The leading troops may be fought to a standstill while the rear formation or units are deploying;
- (iv) Too many troops are apt to be committed to the frontal, and not enough to the flank attack.



2. THE LINE OF SMALL COLUMNS. (see FIG. 3)

F.S.R. II, Sec. 63, 1 (a) states: "If it has been possible to dispose the columns during the approach march with a view to enveloping the hostile flank, and if the enemy does not adjust his dispositions

to meet this manœuvre, a long step will have been taken towards obtaining success."

(a) ORGANIZATION.

Assuming that a commander has the initiative, and knows the area if not the position of the hostile force, his best course is to advance in a line of small columns for the following reasons :—

(i) *Each small column is self-contained in its ability to advance in the face of light opposition, such as may be encountered in hostile outposts, and to resist if attacked.* Some artillery and, perhaps, other arms will be placed under its command, and should the extent of front be too great, or obstacles parallel to the line of march exist, some cavalry may be added as well. Tanks, unfortunately, are usually too few to dole out at this stage.

Each small "column" is only so in name, for it will also shake out into groups in accordance with the general principles outlined in these paragraphs.

- (ii) *The maximum fire-power of the force can be developed early, since each column will also advance on a broad front.*
- (iii) *The column on the "decisive flank," if the commander has been able from the strategical or tactical situation, or his knowledge of the ground, to pre-conceive which it will be, is given a "weightage" in artillery, and "aimed" in a direction in which it is likely to outflank the enemy. The greatest effect is produced if only a small detachment is sent to attack frontally, and the bulk of the force is moved wide round to attack the enemy in flank and rear.*
- (iv) *The position of the commander should be on the "decisive flank," where he can most effectively "impose his personality," and influence the course of events in accordance with his intentions.*
- (v) *Depth is given to the force by the fire-power of its various arms—machine guns, artillery, and tanks—and not by men.*
- (vi) *Manœuvre. As the force is not "deployed" manœuvre is still possible. If the commander finds that his columns are too much to one flank or the other, he can incline their lines of march; or he can wheel them into a new direction (Figs. 4A and 4B).*
- (vii) *The reserve is the column of the "decisive flank," placed where it can come into action most quickly and with the*

so short to greatest effect. Should the commander decide that, for any reason, he must hold a reserve further back, he can without difficulty withdraw one or more columns.

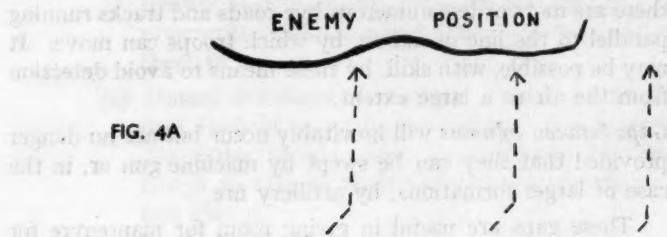


FIG. 4A

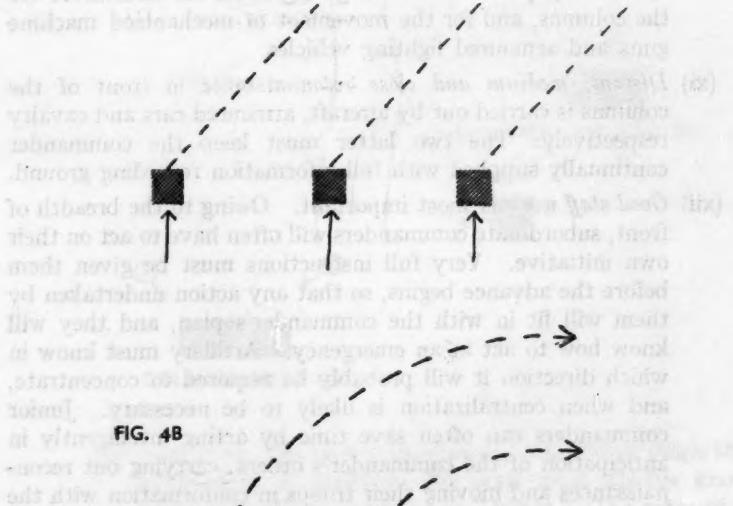
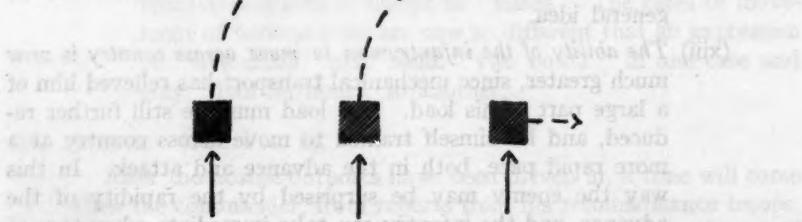


FIG. 4B



- (viii) **Bounds**, consisting of a series of important tactical features (see Fig. 3) are given to columns to seize in their advance. Columns give subsidiary bounds, where necessary. In this way all important tactical features are secured, and the unimportant ground between is left unoccupied. Columns should gain and report touch on these bounds.

- (ix) *Movement should be across country* by the shortest route on to the next bound, main roads liable to shelling being avoided. If cross country movement is not possible, in most countries there are more or less numerous bye-roads and tracks running parallel to the line of march, by which troops can move. It may be possible, with skill, by these means to avoid detection from the air to a large extent.
- (x) *Gaps between columns* will inevitably occur but are no danger provided that they can be swept by machine gun or, in the case of larger formations, by artillery fire.

These gaps are useful in giving room for manoeuvre for the columns, and for the movement of mechanized machine guns and armoured fighting vehicles.
- (xi) *Distant, medium and close reconnaissance* in front of the columns is carried out by aircraft, armoured cars and cavalry respectively. The two latter must keep the commander continually supplied with full information regarding ground.
- (xii) *Good staff work* is most important. Owing to the breadth of front, subordinate commanders will often have to act on their own initiative. Very full instructions must be given them before the advance begins, so that any action undertaken by them will fit in with the commander's plan, and they will know how to act in an emergency. Artillery must know in which direction it will probably be required to concentrate, and when centralization is likely to be necessary. Junior commanders can often save time by acting intelligently in anticipation of the commander's orders, carrying out reconnaissances and moving their troops in conformation with the general idea.
- (xiii) *The ability of the infantryman to move across country* is now much greater, since mechanical transport has relieved him of a large part of his load. The load must be still further reduced, and he himself trained to move across country at a more rapid pace, both in the advance and attack. In this way the enemy may be surprised by the rapidity of the advance, and the infantry can take immediate advantage of the successes gained by tanks.

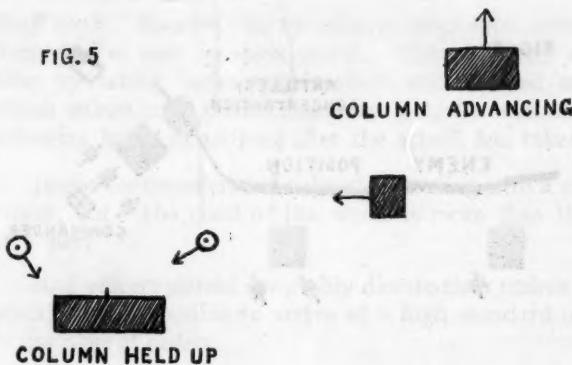
(b) THE ADVANCE.

- (i) *The hostile outposts.* As the advance progresses columns will meet the hostile outposts, which will usually consist largely of mechanical weapons on a wide front but with little depth.

The "line" formation of advance will enable the advancing troops to attack along the whole front in force and at the same time to envelop on the "decisive flank." Under these conditions the enemy outposts are unlikely to put up a protracted resistance, and little time may be lost in driving them in.

(ii) *Mutual assistance of columns.* Sooner or later one column may be held up while the column on a flank is advancing. The latter should assist its neighbour by detaching some troops to take in flank and rear the resistance on its front (see Fig. 5).

FIG. 5



(iii) *Staff work.* So that a commander can always judge the possibilities of a situation, the staff must always know the relative positions of troops in "times." The rates of movement of various arms are now so different that an expression of "five miles" may mean "two hours" in one case and only "half an hour" in another.

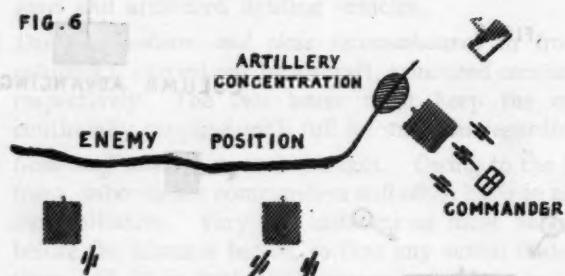
(c) **ATTACK. (SEE FIG. 6).**

After the hostile outposts have been driven in, a time will come when the commander, from reports from his reconnaissance troops, increased fire, more difficulty in advancing, or other indications, will know that he is nearing the enemy's main position. He will have saved much time if he has previously been able to predict on which flank he intends to attack.

(i) *Centralization of artillery command.* His first thought will be to centralize the command of the bulk of his artillery so that

its concentrated fire can be directed to assist the main attack, leaving only a small proportion to deal with the rest of the front and support subsidiary attacks. "Radio" has made this problem much easier. It will seldom be necessary or desirable to alter the actual positions of the decentralized batteries, since artillery with its long range has the power of concentrating its fire at considerable distances, and fire from two directions is often most effective. The artillery commander must join the headquarters of the troops carrying out the main attack to prepare fire plans.

FIG. 6



- (ii) *Reserve.* If his reserve is not already in the right place, the commander will begin to move it there as soon as he finds that an attack is necessary. Again, time is saved if the reserve is in the area, in which it is likely to be used, from the outset.
- (iii) *Reconnaissance by commander.* The commander must make his decision quickly. The workers—battery, battalion and tank commanders—must be given time to carry out their more detailed and essential reconnaissances. The higher the commander the more must he make decisions "off the map." His reconnaissance troops and leading formations must keep him continually informed regarding ground.
- (iv) *Conferences.* He must also avoid holding conferences during operations. Much time is wasted in bringing subordinate commanders from great distances, often when their presence is urgently required with their commands. The instructions that have already been issued should be sufficient for them

to act on, but if a subordinate commander is not acting according to his intentions, the commander's best course is to visit him and "impose his personality."

- (v) *Cavalry and armoured cars.* As the main bodies approach, the cavalry will be "squeezed out" and should concentrate, under previously issued instructions, on the flank where they will be most useful, i.e., the "decisive flank," from where they will be able to co-operate in the main attack, and, when the enemy is defeated, to pursue.

Armoured cars should carry out reconnaissances wide to a flank.

- (vi) *Staff work.* Mounted liaison officers from each subordinate formation or unit are most useful. They can save valuable time by taking back verbal orders and marked maps on which subordinate commanders can act, the written orders following later, sometimes after the attack has taken place.

Junior commanders may object to parting with a mounted officer, but "the good of the whole is more than the good of a part."

Staff officers should invariably dictate their orders. With practice, it is possible to arrive at a high standard of speed in the issue of orders.

(d) PURSUIT.

F.S.R. II, Sec. 75, 1 states: "It is important that subordinate commanders should receive information during the battle of the direction in which further advances are required by the higher command."

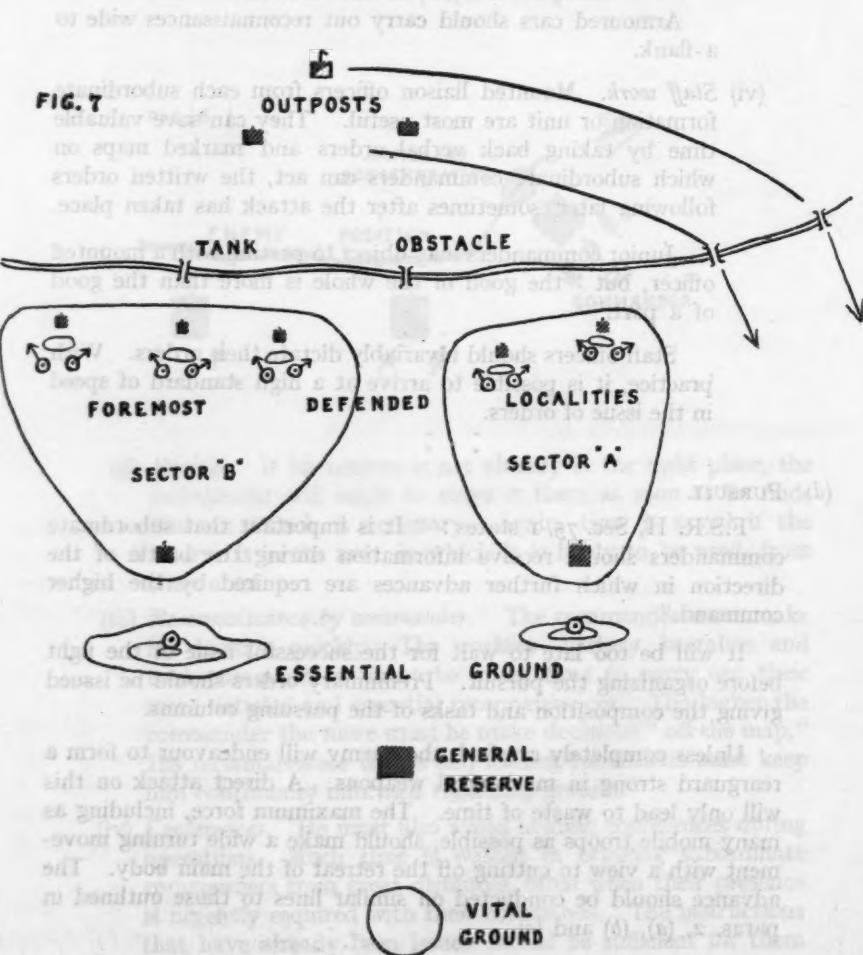
It will be too late to wait for the successful issue of the fight before organizing the pursuit. Preliminary orders should be issued giving the composition and tasks of the pursuing columns.

Unless completely crushed, the enemy will endeavour to form a rearguard strong in mechanical weapons. A direct attack on this will only lead to waste of time. The maximum force, including as many mobile troops as possible, should make a wide turning movement with a view to cutting off the retreat of the main body. The advance should be conducted on similar lines to those outlined in paras. 2, (a), (b) and (c).

3. CONCLUSIONS.

The "line" system of advance has the following main advantages over the "column":—

- (a) Less time taken to deploy ;
- (b) Full fire effect developed early ;
- (c) More suitable for envelopment ;
- (d) Offers smaller target to air and artillery attack ;
- (e) Easier to conceal troops, and so effect surprise.



III. DEFENCE

I. "VITAL" AND "ESSENTIAL GROUND" AND "FOREMOST DEFENDED LOCALITIES." (SEE FIG. 7).

(a) DESCRIPTION.

- (i) *Vital ground.* Every organized community has ground which is vital to its existence, ranging from the seat of government or manufacturing area of a nation down to the small tactical feature of the platoon.
- (ii) *Essential ground.* This vital ground is commanded by certain tactical features, which it is essential that the enemy should not seize, in order that the vital ground may not be compromised. For instance, it is "essential" for the defence to hold ground where the enemy might establish aerodromes for the bombing of a "vital" town, or a high hill from which he might command a "vital" bridge. High ground, also, often gives forward artillery observation, and so is doubly essential. In order to protect this "essential ground" it will be necessary to hold features further forward. In fact, in practice, the "essential ground" of the higher formation becomes the "vital ground" of the lower.
- (iii) *Foremost defended localities.* The foremost troops must be established at a sufficient distance in front of the ground that is "essential," so that the shock of the enemy's attack may be absorbed before the "essential ground" is reached, and there will be no danger of it falling into his hands. The area between the "foremost defended localities" and the "vital ground" becomes the battle zone of the formation or unit told off to defend it.

For instance, a commander is informed that a certain town is "vital." He decides that to protect it, it will be "essential" to hold certain hills commanding it. These hills become "vital ground" to the subordinate commanders, who in turn select certain other localities which are "essential" to the defence of the hills. These localities become "vital" to their subordinates; and so the process goes on, until the "foremost defended locality" is "vital ground" to the platoon told off for its protection.

(b) THE CHARACTERISTICS OF THE DIFFERENT TYPES OF LOCALITIES IN GENERAL ARE :—

- ¹(i) *Vital ground:* Towns, railways, bridges; usually low-lying.
- ¹(ii) *Essential ground:* Tactical features, hills; commanding ground giving observation to front or rear.
- ¹(iii) *Foremost defended localities:* Small inconspicuous features, giving good machine-gun positions, if possible, behind tank obstacles.

¹ (i) is usually determined for a commander, (ii) and (iii) he may decide on for himself.

2. THE DEFENSIVE POSITION.

(a) Deployment.

Although a commander may have reconnoitred the ground and selected suitable defensive positions, "unless (he) has been able to occupy a position which the enemy is compelled to attack to regain his liberty of action, the force will not be deployed for battle until the enemy's line of advance has been ascertained."—F.S.R. II, Sec. 79, I.

If the enemy is strong in armoured fighting vehicles and mobile troops, the attack may come from almost any direction.

(b) Reconnaissance and Allotment of Sectors.

When once he has made up his mind to occupy a position, the commander must waste no time in dividing up the ground, according to tactical features, among the formations or units under his command. In order that the "workers" may get on to the ground early, it will often be necessary for him to allot areas to junior formations or units "off the map," indicating what ground is "essential," and leaving it to the subordinate commanders to select the "foremost defended localities." He must ride round later and readjust, if necessary, boundaries and the machine-gun defence of the gaps between formations and units.

(c) Gaps.

As in the advance, it is the important tactical features which must be secured, the low ground between being covered by the crossed fire of machine guns. It may be possible to ambush the enemy by leaving an apparent "hole" in the defences, into which he will penetrate, and then to counter-attack him with troops already detailed for the purpose.

(d) Defence against Armoured Fighting Vehicles.

As armoured fighting vehicles may attack the position from almost any direction, all-round defence of each formation and unit, not omitting the services, is necessary. Full use should be made of both frontal and flanking tank obstacles.

Headquarters must protect themselves, not by withdrawing fighting troops but by establishing themselves in protected areas.

(e) Delaying action.

If delay only is intended a much wider frontage may be occupied in order that the maximum fire power of the defence may be developed early.

(f) Bivouacs.

Owing to the range at which attacks both from the air and by armoured fighting vehicles can be carried out, troops in bivouacs

within the radius of action of a hostile force, should be dispersed, preferably in unit areas, in suitable anti-tank localities. Some artillery may be added to assist them in their defence. The protection of the services must not be forgotten.

3. ACTION OF CAVALRY AND OUTPOSTS.

- (a) Troops that are in contact with the enemy may become exhausted, or even destroyed, and cannot be relied on later to act as a reserve.
- (b) In order that the fire of the main position may not be masked, outposts should not withdraw through the position, but round one flank or the other. In this way, it may be possible to draw the enemy into the most desired direction.

Outposts after withdrawal, may be used either to prolong a flank of the main position (cavalry is particularly suited to this task) or to occupy a portion of the position in which a gap has been left for them.

4. THE MOBILE DEFENCE.

- (a) If the whole of the force is locked up in a defensive position, it runs the risk of being crushed between a frontal attack and an attack in flank and rear, carried out by troops which have advanced by a wide turning movement.

If the commander has not been skilful in occupying his position, the turning column, particularly if it is strong in mobile troops, may avoid a direct attack, and seize the vital ground in rear.

- (b) To avoid disaster the best course for the commander of a large force is to organize his force into three strong groups placed at some distance apart, and a reserve of the bulk of his mobile troops.
 - (i) If the hostile commander attempts to penetrate between the groups, as in Fig. 8A, he may be crushed from three sides;
 - (ii) Should he endeavour to outflank, as in Fig. 8B, his attacks will be diverging, and his separated columns can be dealt with in turn by the remaining group and the reserve;
 - (iii) Should he concentrate on one group, the remainder can launch a counter-offensive, as in Fig. 8C.

5. CONCLUSION.

Owing to the high mobility and attacking power of modern forces, defence has become more difficult. More routes are possible by which the vital ground in rear of a position can be reached, and in trying to guard all of these, the defence may be split up until it is strong nowhere

and liable to defeat in detail. The only real solution is for the defence to create an opportunity to launch a counter-offensive, which will make full use of its mobility and hitting power.

IV. SUMMARY

Recent changes in organizations and equipment, hastened, in our case, by difficulties in recruiting due to falling birth rate and peace propaganda, point to the fact that modern armies will become based more on machines and less on man power. It is doubtful whether we have yet reached the best organizations for units and formations. For instance, since armoured fighting vehicles and machine guns are the chief means of attack and defence respectively, are there not still too many men in a battalion? Will not, say, one strong rifle company of 300 men transported in armoured cross-country lorries, two or three companies of machine-guns, "in-fighters" and light tanks be more suitable to present and future conditions? It is wrong, also, to have to employ fighting troops to protect rearward services, which should include in their organization some means of protection against aircraft and armoured fighting vehicles. Will not the protective duties in front of an advance be more efficiently carried out by light tanks and armoured cars instead of cavalry; if so, how are the latter to cope with such vehicles on the enemy's side?

Progress is now so rapid that there is a distinct danger of our tactics and organization falling behind. It is said that tactics change every ten years. To prevent ourselves being surprised, we must consider not only our tactics with forces constituted as at present but with those likely to be in existence ten years hence.

Most of us are too apt to be mentally lazy. We rely on "clichés," catch-words, shibboleths and the opinion of others; we become the slaves of systems and routine. Even regulations become out of date. We must think things out for ourselves. Junior commanders should be encouraged to put forward their points of view and difficulties. The "man on the spot" is often more in touch with realities. For instance, the mistake of launching troops against barbed wire and machine-guns might never have been made if junior commanders had in peace time been encouraged to voice their convictions. Mental discipline may still be preserved. Let us work out these problems and make our mistakes during peace, when there are no casualties, so that when war comes, our training, organization and armament may be as perfect as possible. The next war may be won not by greater apparent strength but by better thought beforehand, and "thinking costs nothing."

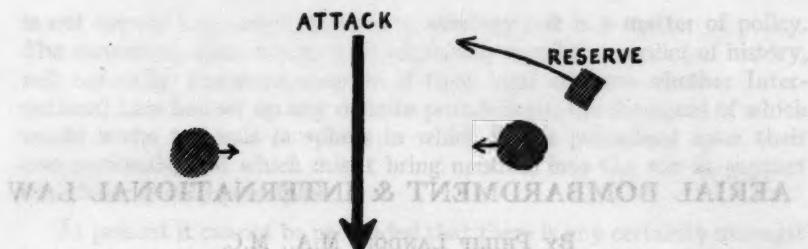


FIG. 8A

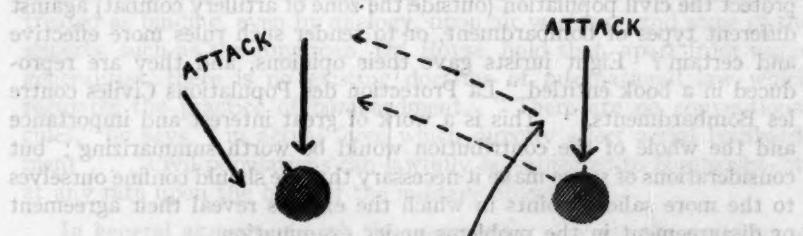


FIG. 8B

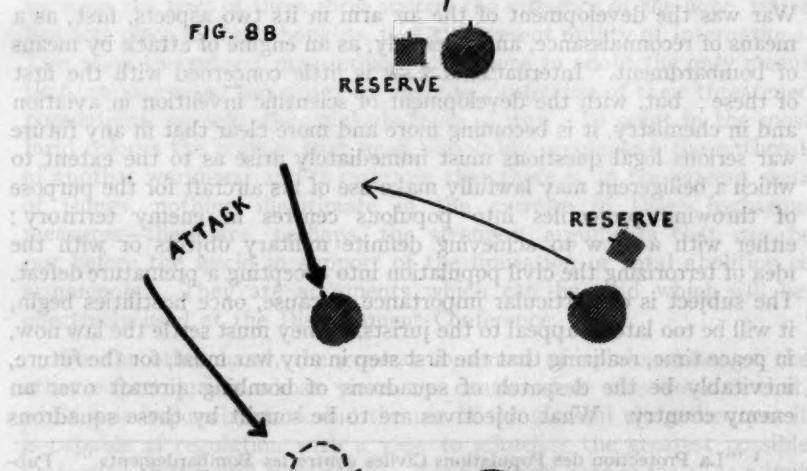


FIG. 8C

AERIAL BOMBARDMENT & INTERNATIONAL LAW

BY PHILIP LANDON, M.A., M.C.

IN 1929, at the instigation of the German Red Cross, a request was made to certain leading international lawyers in the principal countries of the world to furnish replies to the following question : Is it possible to state definitely the rules of International Law which protect the civil population (outside the zone of artillery combat) against different types of bombardment, or to render such rules more effective and certain ? Eight jurists gave their opinions, and they are reproduced in a book entitled "La Protection des Populations Civiles contre les Bombardements."¹ This is a work of great interest and importance and the whole of the contribution would be worth summarizing ; but considerations of space make it necessary that we should confine ourselves to the more salient points in which the experts reveal their agreement or disagreement in the problems under examination.

It is generally recognized that, both from the strategical and from the tactical point of view, the most important innovation in the Great War was the development of the air arm in its two aspects, first, as a means of reconnaissance, and, secondly, as an engine of attack by means of bombardment. International Law is little concerned with the first of these ; but, with the development of scientific invention in aviation and in chemistry, it is becoming more and more clear that in any future war serious legal questions must immediately arise as to the extent to which a belligerent may lawfully make use of his aircraft for the purpose of throwing projectiles into populous centres in enemy territory ; either with a view to achieving definite military objects or with the idea of terrorizing the civil population into accepting a premature defeat. The subject is of particular importance, because, once hostilities begin, it will be too late to appeal to the jurists. They must settle the law now, in peace time, realizing that the first step in any war must, for the future, inevitably be the despatch of squadrons of bombing aircraft over an enemy country. What objectives are to be sought by these squadrons

¹ "La Protection des Populations Civiles contre les Bombardements." Published by the International Red Cross Association. Geneva, 1930. p. 253. Price 10 francs.

is not merely a question of military strategy ; it is a matter of policy. The statesmen, upon whom must ultimately recoil the verdict of history, will naturally, therefore, enquire of their legal advisers whether International Law has set up any definite prohibitions, the disregard of which would invite reprisals (a sphere in which law is powerless) upon their own nationals, and which might bring neutrals into the war in support of well-recognised principles.

At present it cannot be pretended that there is any certainty amongst international lawyers as to the limits which are imposed. Perhaps the only point upon which all eight of these experts are agreed is that, in view of the complete novelty of the problems raised, it is impossible to apply to the modern technique of air bombardment the principles which, under the Hague Convention of 1899 and 1907, were designed to regulate the use of artillery on land and sea. Those principles can no longer be treated as binding, even by analogy, upon air warfare ; and some of the experts, such as the American, Dr. Royse, hold that, apart from vague generalities, there is no existing doctrine of international law which regulates the practice of bombardment. "There are no conventional rules," he says, "in actual force which directly affect aerial bombardment . . . Civil populations can lawfully be subjected to bombardment, at any rate upon the basis of the military objective."

In general agreement with this pessimistic view are the opinions of our own Sir George Macdonogh, of the Dutch Professor van Eysinga, and of the German Professor Simons. It is perhaps possible to read between the lines of these three writers the influence of the hope, which has first place in their thoughts, that the present nullity of International Law upon the subject may induce the nations to adopt the only means that, on this view, can prove an effective protection of their threatened populations, namely, the total abolition of war. To point in the most lurid colours the horrors that must inevitably accompany the outbreak of another world-war and to maintain that there is, in the present state of things, nothing illegitimate in the exercise of these barbarous measures—these are, perhaps, the strongest arguments that can be put before the world in support of the limitation or total abolition of armaments. They are arguments which can be, and which will be, effectively used at the Disarmament Conference.

On the other hand, the general consensus of opinion amongst the other expert jurists whose views are contained in this book is that, while it is impossible to forbid the use of the air arm altogether, yet it is capable of regulation with a view to affording the greatest possible protection to the civil population. None of them goes so far as to admit that the present condition is satisfactory, but they consider that inter-

national legislation, whether taking the form (as the Swiss, Colonel Züblin suggests) of a new draft code, or merely giving legal force to such pronouncements as the Washington Convention and the suggestions of the jurists at the Hague in 1922, is capable of restraining bombardment from the air within limits which will satisfy the requirements of humane and civilized opinion. Typical of this standpoint is the contribution of Professor Sibert, of Rennes, which is the longest in the book and may fairly be taken as representing the juristic views of our French neighbours.

We propose to give a summary of his treatment of the problem, as it is of particular interest to learn the views held by lawyers in the country which to-day has at its disposal the largest air force. He begins by indicating, with rhetorical power, the terrible results that would ensue from the unfettered dispersion of poison gas from aircraft upon the huge cities of modern Europe. Sentiment, perhaps, and moral theory may do something to restrain statesmen and military commanders from the most extreme courses that are open to them; but, he asks, cannot International Law, as such, prevent, or at least limit, the damage to peaceful citizens? He agrees that nowadays there is no force left in the pre-war conventions; and the Great War did little but encourage the false idea that it is legitimate to adopt any measure which may tend to reduce the morale of the whole enemy population. Since then such proposals as have been put forward are without any adequate sanctions; the 1922 code of the jurists, besides being too ideal, has not been ratified by a single state.

Nevertheless he firmly believes that it is possible to effect a reconciliation between the precepts of humanity and the demands of military necessity, and this can be achieved by the universal acceptance of a single general principle, namely, that aerial bombardment must be confined to "military objectives." This term requires careful definition, and Professor Sibert, after rejecting as too vague the "list" of objectives given by the Hague jurists, puts forward the proposition that: "a military objective" should include "any thing or any person that in fact contributes to the preparation or execution of hostile acts of destruction." No immunity can be claimed for private property, nor is it any defence that the bulk of the products of any factory is innocent in character. Nor is human life to be spared, for nowadays "the workers participate in every war." But the definition, he maintains, would have the effect of rendering unlawful any bombardment designed merely to terrorize the inhabitants, or to destroy the economic life, of an enemy people. And it would be unlawful to transgress these limits even under the guise of reprisals, except upon the recognition by some international tribunal of the illegality of the enemy's conduct.

In this connexion, he criticizes one principle advocated by the Hague jurists, namely, that no bombardment should be allowed if it invites indiscriminate bombing of the civil population, for, as he points out, this would encourage governments to put their munition factories into crowded areas, in the hope of securing the protection of the law. It is more sensible to recognize the right to bombard any military objective, whatever it be, and to leave the belligerent to evacuate the civilians.

Finally, Professor Sibert considers in some detail the rules which should govern the actual process of bombing. Military considerations obviously make it impossible to require prior notification and impossible to restrict bombing to the hours of daylight, though he expresses the pious belief that deliberate aim is facilitated at night when the squadrons can fly at a low height above the ground. But since the term "military objective" implies some particular locality, no projectile can be lawfully used if its nature is such that it must spread its effects beyond the actual objective affected. On this ground he contends, as a matter of legal argument and not of mere sentiment, that the use of any form of incendiary or poisonous bomb should be absolutely prohibited.

The only remaining question is that of sanctions. In peace time, he thinks, much could be done by extending to the manufacture of poison gas the system of "*contingentement*" (controlled rationing), which is already in force in connexion with the manufacture of opium. He would like to see the establishment of an international inspectorate, whose requirements could, if need be, be enforced by economic or financial blockade. In time of war, of course, he has to admit that all sanctions disappear; it is useless to prosecute individual infringers; the imposition of pecuniary penalties by way of reparation has been shown to be extremely ineffective; and the adoption of reprisals can only add to the vital burden of human misery. Hence the only hope is that the League of Nations should act now, in time of peace. "C'est l'heure de la répression par tous dans l'intérêt de tous."

Of course Professor Sibert's views can be attacked at many points, but on the whole the basis which he suggests has at least the merit that it represents the development of a cardinal rule of international law. Even if war is to cease for ever, even if military aircraft or projectiles are never again manufactured, there is still no reason why International Law, which is a science, should not have a complete answer to the hypothetical problems of air bombardment. The consensus of juristic opinion is one of the most important and fruitful sources of the law of nations; and Professor Sibert can at least claim that he has put before the world a constructive theory which, in general outline at any rate, is a logical development of the fundamental principle that war is only

lawful if and in so far as it is an attack upon the military power of the enemy.

If this principle were in any way shaken, the next war, in view of the progress of scientific invention, might indeed end in a few days in the annihilation of a whole people. It is true that German military writers, supporting their views by the specious argument that the shortest war is the most merciful, have contended that war is a conflict of peoples, in which every national of one state—man, woman or child—can be made the victim of military action; and even amongst German lawyers, like Professor Simons, there is a disposition to argue from the use of sea power for economic warfare (which has been sanctioned by centuries of usage and theory) to the entirely fallacious conclusion that actual military operations, such as air bombardment, may be carried on against civilians. We are told, indeed, that this is the natural consequence of the adoption, in the Great War, of the Anglo-Saxon as opposed to the Continental theory of war, although the only proof adduced by Professor Simons for this assertion is that German nationals were treated by our law as being guilty of high treason, an astonishing error—it need scarcely be said. Even Dr. Royse holds that the term "military objective" may conceivably include devastation and terrorization without positively violating the content or even the spirit of the existing rules of war. Of course, it must be admitted that during the Great War, when all nations were experimenting with the new arm, and when the spirit of unrestricted reprisals reigned supreme, there were many things done which could scarcely be defended by any lawyer, however patriotic. But this in no way affects the fundamental principle. Since history began, no publicist has ever attempted to justify on legal grounds the slaughter of women and children with a view to terrorization. Could such a policy be consciously adopted by any nation that has reached the degree of civilization in which the manufacture of the necessary apparatus, aircraft and chemical products, is possible? Clearly not, at any rate in the absence of a case for reprisals. International Law cannot, in this XXth century, waver from the fixed doctrine that the object of military attack must be a military objective. That is why we consider that the views of the Frenchman, Professor Sibert, are entirely consistent with the general principle of the Law of Nations.

Nevertheless, the very fact that there should be such remarkable discrepancies in the answers given by these eight jurists to the very straightforward question addressed to them is an alarming matter. We doubt if there is any problem of International Law which more urgently calls for settlement. Here, within a few years of the cataclysm that is

behind us, the nations are ignorant of the inventions of their neighbours, and the general impression is abroad, largely through the uncertainties of the international lawyers, that no state can rely upon what should be held to be an elementary principle of warfare. This publication is just what is wanted to rouse the sleeping world and to convince statesmen that some steps must be taken, and taken forthwith, to secure a firmer consensus of international opinion upon what is lawful and what is unlawful in the practice of aerial bombardment. Where international lawyers themselves are in disagreement, the only solution is to resort to international legislation : the question becomes one of policy rather than of law. It is to be hoped that this valuable work may be studied in all the Chancelleries of the world.

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NAVAL BASES IN RELATION TO EMPIRE DEFENCE

By REAR-ADmirAL H. J. S. BROWNRIGG, D.S.O.

On Wednesday, 28th October, 1931, at 3 p.m.

VICE-ADMIRAL SIR W. H. D. BOYLE, K.C.B., in the Chair.

THE CHAIRMAN, in introducing the Lecturer, said : I need not dilate on the importance of this subject—it can be well summed up in these words which I have taken from the report of a Royal Commission of more than fifty years ago : " We desire to point out that if Your Majesty's ships are to be of any use for the protection of British interests they must be free to act at sea and able to rely with full assurance and certainty upon securing coaling, repairing, and refitting stations."

LECTURE.

IN times of peace such matters as the adaptation of harbours to meet the needs of a fleet in war and the upkeep of existing naval bases are often regarded as merely irksome. Money is always short, so that, whereas a programme for ship construction or the mechanization of the Army seems a tangible contribution towards Empire Insurance, expenditure on docks, magazines and cold storage in distant lands is distinctly unspectacular. Consequently, the latter are liable to be excluded from the annual estimates in order to meet the more urgent call for economy : especially is this the case where opinion is divided as to whether a particular base will ever be used at all. In spite of any such considerations, the provision and modernization of naval bases are matters deserving our closest attention, because even as the acquisition of these bases was one of the primary factors in building up the British Empire, so the lack or the diminution of them might, in a future war, lead to its downfall.

In these days of treaties designed to prevent war and to facilitate disarmament, the word " offence " is becoming even more unpopular ; nevertheless, the best definition of the term " naval base " remains that which was put forward by Mahan, who described it as " the indispensable foundation on which the super-structure of offence is raised." In other words, its whole function is to provide a jumping-off place from which a fully equipped fleet can strike. This definition is widely known and quoted ; from it has been derived the statement that naval bases are offensive weapons. But this is only half the truth ; for in applying Mahan's definition to the problem of Empire Defence, it is important to note that the possession of naval bases by a Power like the British

Empire, whose sources of wealth and strength are scattered all over the globe, has a vastly different significance from the interpretation of the term made by a Power which may have no really vital interests abroad. In the hands of the latter, naval bases can only be regarded as a means to the offensive ; but, with us, they are essentially defensive, because without them it would be impossible for our fighting ships to counter hostile attacks against our widely dispersed possessions.

In the past it was realized that these bases were vital to the proper application of our sea power, and we owe it to the sagacity of our forefathers that, having acquired them, they realized the recurring need for them and made their retention a condition that entered into all terms of peace. Moreover, the positions of these British bases all over the world were not selected haphazard, but related directly to the work the fleet had to do from each of them. So in the XVth century Henry VII established a Royal Dockyard at Southampton¹ because at that time our principal enemy was France, whose main bases were Honfleur and Cherbourg. Chatham owed its development to the Dutch wars, when it became imperative to have a base on the East Coast. Later, Devonport was developed as being closer to the fleet's objective when the policy of watching Brest closely was adopted. Abroad, we used Cadiz in our wars against France until Spain was ranged against us, when the acquisition of Gibraltar was the first step towards obtaining control in the Mediterranean. Subsequent operations in that sea led to the acquisition of Minorca and later to that of Malta.

Some of the most interesting studies in naval strategy are to be found in the capture and recapture of suitable bases in the Caribbean Sea. At one time supremacy in the West Indies was almost vital to the conduct of war, owing to the importance of the West Indian trade to all countries, and it is impressive to read how the size and value of certain convoys often determined immediate policy and naval movements. Similarly, in the course of the struggle for India we acquired possession of the Cape and Mauritius, so that the end of the sailing ship era left us in a strong position as regards naval bases in those waters where continental navies had interests. These facts illustrate a point which will recur throughout any study of this subject, namely the relation of bases to seaborne commerce. Without such bases a nation cannot maintain fighting ships in a danger zone either to protect her own trade, or to prey upon that of the enemy.

In the century of naval peace which followed the Napoleonic wars, British policy was mainly directed towards what was then called "the maintenance of the balance of power." It must be admitted that we

¹ Transferred to Portsmouth by Henry VIII.

wisely interpreted this phrase as meaning that no stone should be left unturned to ensure the safety of those communications on which the security of the British Empire absolutely depends. In the pursuit of this policy we made certain notable acquisitions. In 1818, owing to the enterprise of Sir Stamford Raffles, who foresaw in that port the Gibraltar of the East, we secured Singapore; in 1839, on a somewhat flimsy pretext, we seized Aden; and in 1841 we acquired Hong Kong.

On the other hand, we were careful to throw our weight against the acquisition by any other maritime Power of a base which might threaten the security of those communications. A little known example of this is provided by Cyprus, which we acquired from Turkey in 1878 in order to prevent any other Power establishing a base close to the Suez Canal. A more striking instance is the firm front shown by us in 1911 when Germany threatened to take Agadir, which would have given her a base on the flank of our communications to the Cape and to the Mediterranean, i.e., both routes to the East. This was a direct prelude to our action in entering the Great War in 1914 when, in continuation of our ancient policy we would not, and could not, stand by and see Belgium pass permanently into the hands of a strong maritime Power.

Although the Great War is over, and it has left us with neither territorial loss nor expansion—for mandated territories cannot be considered assets in Imperial Defence as far as building naval bases is concerned—we must not be too certain that the defended bases we may now possess are sufficient for our future needs. It must be remembered that most of our bases abroad were captured because they were essential to us in past wars. For example, we have only one base in South American waters, the Falkland Islands, which are badly placed for covering our important trade with Brazil and the river Plate; also we are somewhat deficient as regards defended bases in the Far East.

The importance of bases in the Eastern Hemisphere seems to have been well recognized by Japan at the time of the Washington Conference. In the original American draft no mention was made of bases, but Japan refused to consider reductions in ships unless bases were considered as well. Consequently, the well-known clause maintaining the *status quo* East of Longitude 110° came into being. By this agreement, England retained full power at Singapore but cannot improve the defences of Hong Kong; the United States gave up plans for building new bases at Guam and Manilla, but retain full power at Hawaii; Japan agreed not to proceed with the fortifications of the Bonin, Kurile, Liu Chu, Formosa and Pescadores Islands.

One of the outstanding lessons of the late War from a naval point of view was that the effect of economic warfare was greater than it used

to be. The modern tendency is for all civilized states to depend more and more on overseas supplies, and all are vulnerable to attack in this respect; yet this applies to ourselves more than to any other Power, owing to the scattered nature of the British Empire. The attack and defence of seaborne trade is, therefore, certain to be in the future, as it has been in the past, a primary function of any Navy, and one which it cannot fulfil without suitably positioned naval bases and fuelling ports.

Quite apart from the German submarine campaign, which developed later in the War, we are still smarting under the remembrance of the losses caused to our maritime trade by the ten German cruisers which were in the outer seas when the late War commenced, assisted by the occasional surface raiders that broke out through the containing forces of the Allies. It was very difficult to bring them to book, even with an overwhelming superiority in cruisers—which, incidentally, we may not possess in the future—and one of the principal reasons that we were able to run them down at all was that we had bases and they had none. So it is easy to realise how difficult the task of trade defence would be if any future enemy had free access to the ocean routes from suitably placed bases. Thus another factor to be considered in Empire Defence is how to neutralize possible enemy bases. Apart from capturing them in war—always a difficult operation—this can only be done by naval forces acting from British bases so placed that enemy ships must face the possibility of being brought to action whenever they put to sea.

We have many natural and defensible harbours all over the world, but since it is economically impossible to make the Empire into one large stronghold, what we have to decide is which ports are essential to our future needs, and then to find the necessary money to make them secure against a reasonable scale of attack. Unless this expenditure is faced, a fleet may have to improvise its own defences during war in a port which it may be necessary to use; this happened at Scapa Flow. Lord Jellicoe and Mr. Winston Churchill have clearly pointed out the immense risk to the Empire that was involved by the lack of a proper fleet base when war broke out. A hampering factor in preparing bases in peace time is the fear of giving political offence abroad, and this has been a stumbling block to the development of Singapore, which place will be dealt with more fully later.

REQUIREMENTS OF MODERN NAVAL BASES.

In the days of sail, our ships could keep the seas for many weeks, but even then they required bases where they could water and carry out larger repairs than could be conveniently effected at sea. Nevertheless, their requirements were more or less simple compared with

the needs of a modern fleet, which grow more complex every day. Again, our forefathers when in harbour were pretty safe against attack without such warning as a reasonable degree of vigilance could give, whereas to-day we require elaborate precautions against the unseen approach of the hostile submarine and the swift attacks of enemy aircraft. It is clear, therefore, that the requirements of naval bases are now more exacting, and the necessity for them greater rather than less, because, more than ever, it is useless to provide ships without bases from which they can operate. No better example of the weakness of a modern fleet without oversea bases can be quoted than the case of Germany in the late war. She had no proper base except Tsing Tau, and even this had no strength of ships to cover it and its communications ; the result was that German ships were forced to remain at sea or to depend upon neutral ports in out-of-the-way places for supplies. Such temporary bases did not meet the exacting requirements of wartime, nor did they provide places where the ships could rest the crews and overhaul machinery. Moreover, we were always liable to obtain information of the location of any German ships.

It is generally recognised that the chief requirements of naval bases should be considered under the heads of "Position," "Security" and "Resources," and in that order. A synopsis of the various factors to be considered is given in the accompanying diagram, the strategical factors being grouped into "Offensive" and "Defensive" groups ; the former being those which contribute directly to the striking power of the fleet, the latter being those mostly concerned with security. Technical requirements are shown, but will not be dealt with here as they appertain more to the subject of Coast Defence.

I. POSITION.—It is obvious that the main strategic factor is that of "Position." There are, in fact, quite a number of aspects from which the position of a base can be viewed, the most important being that the ideal port should permit of the fleet being based conveniently in respect to its objective. The objective of a fleet can be expressed in various ways, but directly or indirectly the object is the destruction or neutralization of the enemy's armed naval forces, for once they are disposed of all else becomes possible. In the main, therefore, the position of the base should be such that the enemy ships can be brought to action whenever they put to sea.

The basing of the Grand Fleet during the War offers a good example. Scapa Flow was excellent strategically, both for preventing the egress of German warships to distant theatres of war and for supporting the blockade ; but tactically it was rather too far distant to ensure that the High Sea Fleet would be intercepted if it made coast raids. For

NAVAL BASE.		STRATEGICAL FACTORS.		OTHER CONSIDERATIONS.	
		OFFENSIVE.	DEFENSIVE.	RESOURCES.	TECHNICAL.
Position in relation to Own Objective.	Security of Communications.	Docking Facilities.	CLOSE DEFENCES.		
Position in relation to Enemy Objective.	Alternative Approaches.	Repair.	Sea Front Defences.		
Position of Alternative Bases.	Security from Sea Attack.	Labour.	Land Front Defences.		
Position of Advanced Bases.	" " Land "	Fuel	Anti-Aircraft Defences.		
Position of Support Bases.	" " Air "	Ammunition.	DISTANT DEFENCES.		
Chains of Bases supporting one another.	Size of Base Area.	Stores	Surface.		
Position Flanking Enemy Communications.	Easy Access for Friendly Ships.	Provisions.	Patrols		
	Difficult Access for Enemy Ships.	Various.	Air.		
	Difficult Waters for Enemy Mining Operations.	Recreational Facilities.	Minesweeping Service.		
	Difficult Waters for Enemy Submarine Operations.	Hospital.	Defensive Minefields.		
	Difficult for Enemy Air Attack.	TOPOGRAPHICAL.	Aerodromes.		
		Ample Berthing Space.	MISCELLANEOUS.		
		Good Holding Ground.	Examination Service.		
		Shelter from Prevailing Gales.	Port War Signal Station.		
		Practice Areas.	Wireless.		
			Land Cables.		

this reason the Grand Fleet was moved to Rosyth in 1917. Later, in 1918, when it became evident that the Germans contemplated interference with the cross-Channel troop traffic, it was under consideration to move the battle cruisers to the Thames estuary and the battle fleet to Hull. Another example of the importance of position was shown by the acquisition of Minorca in the XVIIIth century because Gibraltar was too far off for watching Toulon. Again, in 1904, Sasebo was too far off to watch Port Arthur, which led to the establishment of the Japanese advanced base in the Elliott Islands.

The corollary of this principle presents an interesting feature, namely, if a base near his objective can be denied to an enemy, or if the distance between his base and his objective can be lengthened, a strategic advantage is gained. The Dover Barrage is an instance of the latter, as it forced the German submarines to use the North-about route when their objective was the shipping approaching and leaving the British Isles. The blocking of Port Arthur was an instance of temporarily denying the use of a base near the objective to the Russian fleet during a critical stage in the transportation of Japanese troops to Korea. Thus it is seen that the first meaning of the word "position" when applied to a naval base, is really the position of the fleet operating therefrom, not the position of the base itself. The same applies when using the term "command" in connection with bases. Such expressions as "Gibraltar commands the Mediterranean," "Louisburg commands the St. Lawrence," do not mean that the base itself exercises such control, except in a few cases where the guns of the fortress can carry across a stretch of water that the enemy may want to use, i.e., the Dardanelles or the Straits of Messina. It is the fleet using the base that commands the position.

Napoleon said "war is a business of positions," but he presupposed the presence of an army operating from the position to make it of value. Similarly, the presence of a mobile force working from a naval base is necessary for it to be of value. In spite of his dictum, Napoleon himself blundered when he seized Malta and held it during his expedition to Egypt but neglected to station any ships there. Consequently, Nelson blockaded it with three ships, and Malta was of no real value to the French during those particular operations.

Naturally, when selecting the position of a base with a view to the attainment of one's own object, every consideration must be given to the question of whether it will facilitate the force working from it in obtaining contact with the enemy's fighting ships. A knowledge of the enemy's object helps this, because the best means of protecting our own interests in any given area is a vigorous offensive against any aggres-

sion. But this condition is closely bound up with the desirability of alternative bases, because the enemy's objective is seldom known precisely. In the watch on Toulon, when it was thought that the enemy might break out into the Atlantic, Minorca was used, but when it was suspected that Sicily or Egypt was his most probable objective Nelson selected Maddalena as a base. This is also an example of bases situated on interior lines.

The possession of alternative bases is always a thorn in the enemy's side. It complicates his strategy and increases his anxieties. An historical example of the use which can be made of alternative bases is to be seen in the manner in which the French used to move their strategic concentrations between Brest, Rochefort, Cadiz, Cartagena and Toulon, which presented many puzzling problems to our commanders. Not only had they to watch all the various ports in which enemy warships lay and yet avoid the watching squadrons being overwhelmed by sudden concentrations, but they also had to guess the direction in which an enemy force, if it broke out, might be going. It is worthy of note that in the late war in the North Sea, the Germans worked, for all practical purposes, from one base; yet a puzzling enough problem was presented when, on the night following the Battle of Jutland, the two fleets were so far over in the North Sea that the angle subtended by the German minefields was sufficiently large to offer Scheer two widely separated points to steer for during the night. This gave him what was, in effect, an alternative base and, with it, a chance of escape which came off.

It seldom happens that a principal and permanently defended base will be so ideally placed that the force operating from it can contain, if not destroy, the enemy; it then becomes necessary to establish an advanced base that will fulfil this end. But the existence of an advanced base positively demands the presence of a support base, from which it can be supplied, and which will afford such facilities as are not forthcoming at the advanced base—for example, docking and repairs. Tsing Tau was an example of a base placed out in the blue without a support base, and which, therefore, had to be abandoned by German warships on the outbreak of war. Malta and Singapore are examples of excellently positioned support bases, the point worth noticing in their case being that both lie astride the route to the mother country, this being the ideal position for a support base since it enables forces acting therefrom to safeguard the communications. But when selecting an advanced base it is no advantage to place this so far that it becomes difficult to secure communications leading thereto, for such a position becomes a source of overwhelming anxiety to a commander-in-chief,

who, instead of being free to use his fleet in its proper role, has constantly to take into account the safety of his communications.

Cases have occurred where anxiety for a base has completely emasculated the activity of a fleet. Perhaps the best known example is that of Byng who, charged with the relief of Minorca in 1756, left it to its fate after an indecisive action with the French because he feared for the safety of Gibraltar. If he had only known it, the French were even more anxious for the safety of the communications of their own hard-pressed besieging army, and if he had remained astride the route to Toulon, the safety of Gibraltar would have been assured and the capitulation of the besieging army might have followed. Again, during the Napoleonic wars, we read of considerable anxiety being expressed about the safety of advanced bases, and it is interesting to compare the true and false conceptions of the means of ensuring the safety of an advanced base in the same area of operations. While Nelson wrote "the defence of his Sicilian Majesty's dominions (his base at the time) is to place myself alongside the French," Lord Keith stated of Minorca, "it is too bad that I cannot find these vagabonds, and that I am so shackled by the care of this defenceless island."

Where distances are great, more than one support base is necessary, and there are several instances of chains of bases supporting one another so as to give security of communications over a long passage, provided, of course, that there exists sufficient force to ensure the communications between each. The best example of these are our well-known chains of defended ports leading to the East along the Mediterranean and Atlantic routes, which are of inestimable value. As the result of her war with Spain America acquired a chain of ports—Key West, Havana, Guantanamos, Porto Rico and St. Thomas—which now gives her a most effective control of the Caribbean Sea.

It is an obvious advantage for a base to be situated on the flank of enemy communications. Vladivostok was always a source of anxiety to the Japanese on account of their communications with Korea; the possession of Ostend and Zeebrugge by the Germans was a constant menace to our cross-Channel communications during the late War. In the light of our experience of the recent submarine campaign, it is obvious that it must be a matter of considerable difficulty to secure our communications in the Mediterranean if there existed hostile ports flanking that well-defined route.

Alternative routes to a base increase its value, and this is exemplified by Togo's anxiety when, according to Japanese calculations, Rozhestvensky was late in arriving in the Straits of Tsushima. It is true that, as he had the advantage of interior lines, Togo could probably have

brought the Russians to action before they reached Vladivostok by one of the two longer routes ; but victory was not so certain and might not have been so decisive, because the action would have taken place close to a defended Russian port.

II. SECURITY.—The next requirement of naval bases is that of Security, which should be considered under the three heads of security from attack from the sea, land and air.

(i) *Attack from the Sea.*—The principal security afforded to a naval base from seaborne attack is the presence of a fleet operating from it ; where there is no fleet a base is more liable to attack even if defended. While the powerful defences of Heligoland and other German ports were not tested, the almost insignificant gun defences of Scapa Flow sufficed for its security. On the other hand, the Germans bombarded Hartlepool expecting to meet only inferior forces, while we made our somewhat complicated attack on Zeebrugge without the expectation of serious resistance from German sea forces. We see the dual aspects of this principle in the German attack on the Falkland Islands, which was instantly called off when von Spee became aware of the presence of British ships. But these examples are not meant to indicate that permanent defences are not necessary : quite the contrary. Scapa Flow was a special case, since the Grand Fleet, operating in the comparatively closed waters of the North Sea, effectively covered its own base. But in more open waters, the fleet must be free to operate, and may get out of touch with its base, the safety of which must never become a source of anxiety. But it must be emphasized that where bases exist they must be kept up-to-date, and securely held ; otherwise, if the enemy succeeds in seizing one of them, he will have the advantage of its defences. It will then be more difficult to eject him, particularly if the position of the base was well chosen for our own purpose in the first instance.

No base can be expected to hold out alone for an indefinite time without relief. A permanent base should, therefore, be strong enough in itself to resist attack for a definite time, and the defences provided for its security must be calculated on the time factor and the expected scale of attack, not upon the size of the fleet which is going to use the base—a mistake which is sometimes made. What is required is a combination of strength : strength in the base to hold out till relieved, and strength in the fleet to throw in supplies before the strength of the base is exhausted.

There are many examples in history of bases that were forced to hold out by themselves. Perhaps the most notable is Gibraltar which was seized by us in 1704, and was ever afterwards much coveted by

Spain. Being strong in itself, both against sea and land attack, it survived successive sieges till relieved by the fleet. It is not, however, a good example of the rule of combination of strength, for during its greatest trials we were inferior at sea, and it was only bad work on the part of the enemy which enabled relief to be achieved.

From the point of view of permanent defences and the size of the garrison necessary to hold them, the smaller the base area the better. Thus Malta was annexed instead of Sicily, because, although both were islands, Malta was smaller and easier to garrison. Similarly Tangier was given up in favour of Gibraltar : both had land frontiers, but that of Gibraltar was small and naturally strong ; in fact, Gibraltar has most of the characteristics of an island. A modern requirement bearing on the smallness of an island base is that it should have ample provision for aerodromes.

(2) *Land Attack*.—Land attacks on naval bases can be classed under two heads—as a landing in the form of a combined operation, or as an attack purely from the land frontier.

The strategic security of a naval base from a landing follows the rule of security against attack from the sea, and need not be further examined. History abounds with examples of expeditions sent off with the specific object of capturing a certain base ; but the ability to embark on such an enterprise is often considered to be the direct result of supremacy at sea in that particular theatre of the war. Still, this is not always the case, and there are a number of instances where expeditions have sailed without such supremacy, and what is more, have succeeded in the face of an enemy fleet. The greatest example of this in modern times was the manner in which the Japanese transported large armies to Korea, then besieged and took Port Arthur in the face of the strong hostile fleet in that port, while there was an appreciable force of enemy cruisers in a base flanking their communications. The danger of this undertaking was well exemplified by the actual capture of a ship carrying a siege train for use against Port Arthur. The German combined operation to the Island of Osel and Gulf of Riga in 1917 is a still more recent example of the same circumstance.

Since it is possible that such a combined operation might have to be undertaken at the outset of a future war, it is most desirable that we should not get into the way of thinking that it is too hazardous, either for ourselves or for a potential enemy.

Generally speaking, it is inadvisable to establish a naval base in a position where an enemy can attack across the frontier without going afloat. Security then becomes a military commitment, but the Navy will be saddled with the security of the communications of the large

army required to defend the port. A glance at the map of the world shows that we have naval bases which are either important or may assume importance in war, which may be attacked directly from the land side. It is not within our present scope to discuss the possibility of holding them, but merely to point out that they may be weak links in the chain of Empire Defence.

(3) *Attack from the Air.*—The question of attack from the air is one that must be approached with caution, and moderate opinion indicates that the danger of air attack on oversea naval bases is not so great as might be supposed. It is greatly dependent on the proximity of possible enemy aerodromes, since carrier-borne attacks can only be sporadic and are unlikely, for the reason that they involve great risk to the carrier which is more valuable for other purposes. Heavy bombers of the present day have a radius of from two to four hundred miles, according to type, but the range at which the heavy and continuous attack necessary to reduce a well defended naval base can be delivered is considerably smaller. Nevertheless, the danger exists, and developments in aircraft will make it increasingly greater.

The rule that the chief security of a base against sea-borne attack is the presence of the fleet operating from it is not altogether true when applied to air attack which is to be met by air squadrons operating from the base, because experience indicates that defending air squadrons have to be specially trained and are only fully efficient in conjunction with an elaborate system of listening posts and communications. These facilities are not likely to be available abroad, particularly in the case of advanced bases; ample provision, therefore, as regards aerodrome accommodation for a sufficient force to carry the attack to enemy aerodromes is a new and important feature to be considered when selecting advanced bases.

In the defence of the overseas bases of Panama, Hawaii and the Philippines, the United States include squadrons of aircraft of all types.

III. RESOURCES.—A base should either have resources itself or be so situated that supplies to it can be ensured. Strategically, the resources of a base are an important factor, for if it can obtain essential commodities from the surrounding country, the problem of its communications is much simplified. Docking and repair facilities are the most important resources, and fuel, ammunition and supplies the most essential stores.

Some of our potential bases are deficient in their resources for docking and repair, consequently it may be desirable to develop the resources of a port it is intended to use, or to select a base not so well sited but better off as regards resources. This question has been much to the fore recently in the Singapore controversy. Singapore has few resources

of its own, except native labour, while a place like Sydney has the whole resources and white man-power of Australia at its command. From these premises some people argue that it would be better to develop the latter as a main fleet base. The same argument applies to other Australian ports and offers attractive features because money is profitably spent there in peace time and assists the rise of these ports. It may, in any case, be necessary to develop Australian ports as a means of securing that country against attack, but they could not be substituted for Singapore as a link in the main scheme of Empire Defence, because Singapore is so situated on the main trade artery to the East that it would be inadmissible, strategically, to leave it unprotected and liable to capture by some modern Suffren. In fact, if one were to apply the principles previously stated to the Singapore controversy, it is clear that that port stands the test and answers the chief strategical requirements of a naval base, while Australian ports do not. From the point of view of the attainment of our own object, Singapore is in a good position for supporting any operations in Eastern waters. As regards position in relation to a possible enemy objective, it would flank any operations carried out against Australia, while it guards the approach to India from the East. It covers the main trade route and its own communications, as well as the supplies of oil from Burma and Borneo. Its commercial activities have made it an important cable centre. It prolongs the chain of defended bases to the East, and is easy to defend from seaborne attack and difficult to attack from the land. Good shipping labour is available ; docks already exist and money has already been spent on other essentials of a naval base.

From the point of view of Empire Defence, Australian ports do not answer these tests, though they have the advantage in climate, in certain resources, and in white man power for defence.

THE SELECTION OF A BASE.

An attempt has now been made to examine, as simply as possible, the ideal strategic attributes of a naval base. Obviously it is not possible to select a base whenever such a one is wanted and plant it down in a position where it possesses all the desired virtues. Use must be made of harbours where they actually exist. Naval strategists must, therefore, study localities where bases may be required ; there are, indeed, still some comparatively little known areas in this world of ours. Moreover, we must not take our knowledge of geography too much for granted, because Germany produced some surprises in this respect at the beginning of the late War. Before the War, the German Naval Staff had formulated a plan for the destruction of our oversea commerce by a *guerre de course*, which necessitated and encouraged a study of little

known anchorages ; and an inspection of the activities of those ten German cruisers, which have already been mentioned, shows an intimate knowledge of trade routes, focal points and geography. For instance, the "Karlsruhe" used the island of Caissara, and other little known anchorages on the North coast of Brazil ; the "Dresden" appears to have been quite at home among the maze of passages and bays that lie off the beaten track in the vicinity of the Straits of Magellan ; while the "Emden" demonstrated the strategical value of Diego Garcia in the Chagos Archipelago, although it had long been a British possession.

ADVANCED BASES.

Except for defences which can be quickly improvised to deal with a light scale of attack, an advanced base is normally dependent for security on its position being such that an attack by an enemy fleet can be intercepted by superior forces. A good example of this quality is afforded by the Japanese advanced base in the Elliott Islands which, much to their surprise, was never attacked though only sixty miles from Port Arthur.

It is, however, desirable to provide an advanced base with some sort of defences to avoid a mishap such as happened to Trincomalee in 1782. It will be remembered that a French fleet under the able Suffren fought a number of actions with a nearly equal British fleet. The French had no base nearer than Mauritius, but as Holland had entered the war we were able to seize Trincomalee and use that as a base ; unfortunately we neglected to fortify it. After the third action the British retired to Bombay to refit, whereupon Suffren, seizing the opportunity, entered Trincomalee and so turned the tables on us. He was on the scene of action again considerably earlier than Hughes, and obtained successes which might have been decisive in that area of operations if peace had not intervened.

MODERNIZATION OF PERMANENT DEFENCES.

The situation as regards modernization of permanent defences is unsatisfactory. This may be explained partly by the fact that there are two schools of thought as to the best means of defending a naval base against seaborne attack. One advocates the well-proved system of fixed land guns, while the other points to the men and money locked up in a fixed garrison and armament, and would like to see the defence conducted by aircraft action against hostile ships. The latter view possesses a certain attractiveness to a Government on the supposition that it may be more economical while at the same time increasing the strength of our air forces. It is not proposed to argue the technical pros and cons of these two opinions except to point out that entire

dependence on aircraft for defence involves two outstanding dangers :—

- (1) That the effectiveness of aircraft to destroy warships is doubtful—to say the least of it, unproved.
- (2) That there is always a danger that, in the face of world-wide difficulties, the aircraft earmarked for the defence of the port in question might, quite rightly, not be there when required.

The most reasonable view is that where the importance of the base is such as to warrant sufficient expenditure to make it absolutely secure, the Army and Air Force should combine in contributing the correct proportion of guns and aircraft to meet the expected scale of attack.

CONCLUSION.

If the distribution of the earth's surface among the nations is viewed as a whole, it will be found that the home countries of the three principal maritime Powers are widely separated, and it is sometimes stated, on this account, that each is secure from the others in its own home sphere. From the peculiarly British point of view, however, security on this basis is illusory, because it neglects the vital fact that British security is also dependent on the adequate protection of our world-wide communications. It is, therefore, important to note that there are well defended naval bases belonging to other Powers in every ocean, and that inversely as our strength in cruisers is reduced by international treaties, so is the importance of well placed and equipped British bases increased, because the cruisers depend on these bases to enable them to work at full efficiency.

There is universal agreement among all sensible peoples that international quarrels are best dealt with by arbitration and without resort to war. But British security and prestige, which enable us to exert our influence effectively as an ally, policeman or mediator, are dependent on our ability to move our fleet to any part of the globe, and, if need be, to use it when it gets there. This necessitates a judicious expenditure on naval bases in peace time, because they, no less than fighting ships, are an essential contribution to Imperial Defence.

DISCUSSION.

CAPTAIN E. ALTHAM, R.N. : The Lecturer reminded us of the incident of the Agadir crisis many years ago, and pointed out that Agadir would have constituted a threat, or potential threat, to our communications with South America. I think it would be of interest if he would tell us the present-day situation in regard to bases belonging to foreign naval Powers on that coast.

One other small point. The importance of Singapore seems to be growing continually, not only from the naval and maritime point of view, but now as a projected air base on the Imperial air route to the Far East. What to-day are "stunts," or perhaps very gallant adventures in flying to Australia, will unquestionably be the most ordinary forms of transport in a very short time. In a lecture

given to this Institution by the late Sir Sefton Brancker¹ we learnt how that route was gradually developing; and he foretold in detail how it would be extended in the not distant future. Already the route has reached Karachi, from where the Indian Government have extended it to Delhi. Before very long we may expect to see it prolonged to Singapore and thence to Australia. Therefore, whatever the old controversies may have been about Singapore, I suggest that it is growing in importance to the Empire year by year, if not month by month.

MAJOR J. G. JOHNSTONE, R.M.: I wonder whether the Lecturer, in the course of his studies, has come upon the question of Italian defence bases. I am particularly thinking of Leros in the Eastern Mediterranean. Could he tell us at all what the Italians had in their minds when they began to take an interest in that place?

ADMIRAL SIR HERBERT W. RICHMOND: There is one point about naval bases which I think is of importance, and that is the cost of their upkeep. The Lecturer has very rightly said that the bases serve an Imperial purpose; that is to say, they serve for the protection of the trade of the whole Empire, not the trade of this country only. They serve also—a thing often forgotten—for the defence of the overseas parts of the Empire against invasion or any other form of territorial attack. The sea-borne trade of the Empire is roughly £3,000,000,000. When you analyse that trade from the point of view of the people who draw benefit from it, you find that something in the neighbourhood of one-third of the amount—£1,000,000,000—is trade which is conducted entirely by the people of the Dominions in their own interests. I will not try to break up the figures, but remind you that any particular Dominion may have trade, not only with the United Kingdom, but with France, Germany, India, and with other Dominions and Colonies, and that that trade is conducted wholly by themselves. Again, we maintain abroad, apart from the Army in India, some 27,000 troops, of whom something in the neighbourhood of 11,000 are in Egypt. That means about 16,000 troops abroad in one way or another mainly engaged in the defence of these bases. With all goodwill, it is difficult not to feel that the overseas parts of the Empire might play a part in this element of Empire defence. The burden is very heavy. The British taxpayers are called upon for 115 millions—that is a conservative figure—and those of the Dominions for 16 millions, and the problem as to how the burden of expense is to be met must yearly become greater as the populations and trade of the Empire increase. It is not a thing to be attacked at all hastily, but it is a point which does need to be kept in view.

The Lecturer referred to the strategical importance of natural resources at a naval base, and suggested that in fact a port was practically of no use if it had not resources. That is so. At the time of the blockade of Brest, after 1805, that base was cut off from resources by the inshore squadrons. The result was that the fleet there could not get the stores it required, and Brest became practically valueless—from a "fleet" base it became a "squadron" base. The same was true of Mauritius, which when resources could reach it sustained a squadron, but when none reached it, could only support a mere flotilla.

On the other side of the Atlantic there appears to be a theory that endurance may be a substitute for bases. I regard that as a complete delusion except in very minor cases. During the late War no amount of endurance with which it would have been practicable to furnish our vessels would have enabled us to

¹ "Commercial Air Routes." By Air Vice-Marshal Sir Sefton Brancker, K.C.B., A.F.C.—R.U.S.I. JOURNAL, February, 1928.

conduct our trade through the Mediterranean unless there had been bases for assembly, supply and repair. With regard to Gibraltar, its return to Spain has been suggested on various occasions; but, fortunately for us in the late War, the offer was never accepted. Such suggestions would never have been made if we had understood what a base meant. I mention this because it is difficult to draw conclusions from the present state of the world as to what will be the conditions some time hence. I think nobody at the end of the XVIIIth century could possibly have imagined that at some time in the future Gibraltar would be of importance in a naval war with Germany. Hence the danger of precipitate action in getting rid of possessions because at the moment their value may seem small.

ADMIRAL SIR REGINALD TUPPER: I only want to emphasize the great importance of our chain of sea bases from the point of view of air communication. It seems to me that the voyage of those six Supermarine seaplanes from Southampton to Sydney was a wonderful exhibition of the value to aircraft of sea bases. The development of seaplane communications for conveying mails and passengers between our various sea bases in peace-time is most important, because they will provide a constant patrol in those parts of the ocean where attacks are liable to be made in war by enemy ships and submarines. It does not appear to me that our potential enemies are in a position to interfere very seriously with such seaplane communications. A very real and efficient help to our sea power would be given if our Dominions would provide the bulk of these Supermarine seaplanes and their crews.

THE LECTURER

THE LECTURER, in reply, said : I do not think I have very much to which to reply. The first two speakers asked me about foreign bases. I did not mention those, because we have to be careful in these lectures not to cause offence. But, of course, it is a fact that the French have immense interests in North Africa, and they have at Dakar a cruiser base to which they attach a great deal of importance. I believe they have laid a line of air stations to Dakar, and they also have aerodromes there.

With regard to the Italian bases in the Eastern Mediterranean, I understand that the Italians have always had interests there, and that they were not altogether satisfied that they received due consideration in the matter under the Treaty of Versailles. The Dodecanese Islands in the Eastern Mediterranean belong to Italy, but I do not know very much about them.

THE CHAIRMAN :

In closing this very interesting and lucid lecture I would like to read once more from that report of the Royal Commission of fifty years ago, from which I quoted at the beginning, because I think it is not always borne in mind that the Royal Navy is not maintained for the purpose of affording direct local protection to sea ports and harbours, but to deal with enemy ships at sea. That is clearly stated in this report, which goes on to say, "Our sea ports must rely on local means of defence, leaving Your Majesty's Navy free to act at sea and attack his (the enemy's) interests there." That is true now as it was then, perhaps even more true. What those local means of defence are it may be difficult to decide, but I am sure there ought to be some means of local defence, and those of you who have served recently in our sea ports and bases overseas will know whether they exist or not.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE MAKING OF OUR MODERN ARTILLERY

By LIEUT.-COLONEL H. DE WATTEVILLE, C.B.E., late R.A.

THE history of the Royal Artillery had already been brought down to the end of the year 1859 by various able authors. The volume now under review¹ opens a new era in the existence of the Royal Regiment, whilst it treats the subject from an altogether fresh angle. Up to the days of the Crimean War, the history of the Royal Artillery does not, in fact, differ very materially in quality from that of our older infantry regiments. It consists mainly of a fine record of memorable feats of arms, and it recounts the building up of a splendid regimental tradition. But the creation and organization of the artillery of those days, never very complicated, must remain mainly historical in its interest.

It is, however, true that until 1854 the Royal Artillery had been recruited and administered on a system very different from that which prevailed in the rest of the Army. The Regiment was under the direct orders of the Board of Ordnance and administered by it ; its officers did not purchase their commissions, but were promoted by the Board ; the rank and file were clothed by contract under supervision of the Board and not by regimental colonels. These radical differences, which contributed so much to keeping the gunners apart from the Army, persisted in spirit even after the union of the Artillery with the remaining units of the Army under the orders of the Commander-in-Chief and the War Office came to pass as a result of the Crimean War.

Then, after the Mutiny, came an equally momentous change, namely the fusion of the Royal Artillery with the Bengal, Madras and Bombay Artilleries. For various reasons, as Sir Charles Callwell shows, that step brought the gunners much nearer to their brothers-in-arms. Nevertheless, the process of absorption was tedious ; it encountered some opposition and took time to effect. The gradual unification in administrative methods became still more complete when the abolition of

¹ "The History of the Royal Artillery from the Indian Mutiny to the Great War." Volume I (1860-1899). By Major-General Sir Charles Callwell, K.C.B., and Major-General Sir John Headlam, K.B.E., rtd. 15s. od.

purchase of commissions and the territorialization of the infantry had been achieved by the reforms generally associated with the name of Lord Cardwell. By the time of the outbreak of the South African War in 1899 the Royal Artillery may be said, in most respects, to have become completely amalgamated with the Army at large. This is the greatest and more apparent change which took place in the life of the Regiment between 1860 and 1899.

There was, however, another process at work, less visible perhaps but even more far-reaching in its ultimate effects, without which the Royal Artillery would never have come to occupy the position which it now enjoys in the Army. It was this same process, too, that contributed largely to breaking down the old order of things within the Artillery itself. This great change was brought about by the introduction of rifled ordnance. First used in 1859 by the French at Solferino, rifled breech-loading guns were being turned out by Armstrong in 1860. Their adoption by the Royal Artillery in that year did not fail to initiate what was to be a complete revolution in the methods of employing artillery in war. As may be gathered from this book, the armament and tactics of the British batteries in 1860 was little different from that of the Peninsular War. The guns consisted of smooth-bores of all but primitive design ; tactics were still synonymous with formal drill.

The evolution of a better conception of things proved laborious. Conservatism stifled many attempts at progress ; War Office procedure and red tape was still responsible for retrogressive measures. But perhaps the most remarkable phenomenon of this period was a reversion to muzzle-loading ordnance in the seventies. Yet it does not appear that this step could altogether be condemned, since after lengthy and conscientious trials, it seemed to be justly proved that the breech-loaders of that day were far from perfect in design, whilst the muzzle-loaders "had held their own on most counts—range, accuracy, rapidity of fire, and they had won on the important count of simplicity and of cost." But the advent of the new Armstrong 6-inch B.L. gun in 1885 decisively turned the scale against the muzzle-loader. Then followed the adoption of a smokeless propellant, and lastly, in 1896, the adoption of the new 5-inch howitzer. By the beginning of the South African War the metamorphosis was complete. Slowly but surely organization and training were also modified to suit the new armament. In the matter of command and tactics, however, progress was slower. It was with the greatest difficulty that the batteries could finally be brought under the control of their brigade commanders for tactical purposes and for fire discipline. Much, it is true, remained to be done, but the framework of our modern

artillery was complete ; the best methods for its employment in European warfare could now be elaborated.

By 1899 the Horse Artillery, once the splendid and pampered darling of the Regiment, had come to occupy its true and still enviable position in the Army. But the despised Field Artillery was transformed. The Garrison Artillery, now trained and organized on a more satisfactory basis, had been entrusted with the main share in the duties of a properly constituted system of coast defence, in which the armament, scale of defence and fire tactics had all been evolved after consideration of the problems involved from a broad Imperial standpoint.

Such is the story which is admirably told in this striking volume. The contents is divided into three parts : the first deals with organization ; the second with armament ; the third with training, this part being again subdivided according as it applies to horse and field artillery, mountain, heavy and siege artillery, or coast artillery. The whole is illustrated with the briefest of biographies of celebrated gunners, while appropriate anecdotes, relegated to footnotes, lighten the thread of the narrative. It is a book which merits perusal, not only by the artilleryman but also by the general student of Army development, since it offers some remarkable and important lessons that are applicable to the Army as a whole, even at the present time.

In the first place it becomes abundantly clear that the whole work of reorganizing, re-arming and reforming the Royal Regiment came from within. The Regiment produced many eminent artillerymen, many shrewd administrators, not a few men of science. Between them they evolved the lines on which the archaic armament and organization of the Crimea developed into the truly serviceable, if not perfect, arm of 1899.

Secondly, the authors show conclusively that this transformation came about principally as the result of the study of artillery problems combined with a logical analysis, firstly, of scientific progress and, latterly, of tactical developments in foreign armies. Thus it was that the translation of the famous " Letters on Artillery," written by Prince Kraft after the war of 1870-71, contributed as much as any other factor to a re-modelling of British tactical artillery thought in the seventies.

Thirdly, it is made clear that the war experiences of the Royal Artillery during the period under review counted for very little in this process of development. Small wars, except in the case of mountain artillery, gave little scope for the evolution of an artillery doctrine suited to more serious operations of war. The reformers thus found little material to hand for the solution of the greater problems. It is for this reason that the authors most wisely decided to eliminate all mention

of the war exploits of the Royal Artillery from these pages. They will be dealt with in a separate volume.

So we see, first and foremost, that the Royal Artillery, having a wider field from which to select its reformers, and a wider scope for experiment, was able to produce the men and the brains capable of reforming their own branch of the Service unaided from outside. Secondly, and for similar reasons, not being hampered by the narrower limits of the regiment or battalion, as might happen in other arms of the Service, there was infinitely more opening for change and re-organization. Repeated re-groupings were effected among the batteries; experiments were tried in 1859, 1877, 1881 and 1889. On nearly every occasion change was only possible because of the greater numbers involved; ranks could be altered and adjusted; personnel redistributed or modified. The reformers thus had considerable facilities to proceed with their task, even though strong opposition might be aroused from their more obstinately conservative colleagues. Still, the progressive party always had the great advantage of being gunners working for the good of their own Regiment. There seems to have existed, on the whole, a more harmonious link between the War Office and the batteries than might otherwise have been expected; in spite of the fact that the War Office did make mistakes—and, at times, was quietly ignored. In spite of such difficulties regimental feeling held good, and thanks to its existence, reforms and reorganization were always accepted—in the end. The size of the "Regiment" proved to be its strength. This book is a worthy tribute to the great work that was achieved during those forty years; without it the British Expeditionary Force of 1914 might have proved a rather helpless thing in the field.

In view of the known opinion of public and expert alike, and the belief of all who have followed the progress of shipping, it is natural that attention should be given to the present state of British shipping. It is not, however, without some difficulty to define exactly what is meant by British shipping. In the first place, there is the question of what is meant by "British." Is it the flag under which the vessel flies, or the nationality of the owner? Is it the nationality of the crew, or the nationality of the shipowner? There is also the question of what is meant by "present" situation. Is it the situation at the moment when the article is written, or the situation at the time when the vessel was built?

BRITISH SHIPPING THE PRESENT SITUATION

By SIR N. A. LESLIE, K.B.E.

ALTHOUGH there is nothing new about holding up work while a vessel is on the stocks, yet when an order to suspend construction is given in the case of a much advertised ship like the new Cunarder, it not unnaturally attracts an amount of attention disproportionate to the issues involved. The imagination of the public is excited to an extent far beyond that which would arise from similar action in the case of a dozen or more cargo steamers, whose existence is probably of more utility than that of a super-luxury passenger ship designed to be the fastest in the world. The Englishman is very proud of the supremacy of the British Mercantile Marine, although as a rule he knows very little about it, but everyone can understand and take an interest in "the blue riband of the Atlantic" and even conscientiously believe that it is the duty of the British shipowner to capture and retain this trophy. At the same time the citizen's pride in his country's shipping rarely extends to his country's shipowners, and the notice which has been directed recently to maritime affairs has given rise to several sensational but ill-informed articles in the public press. These give the impression that owing to the inefficiency of the British owner and the supineness of his Government the merchant shipping industry of this country is in a parlous state, and is being outstripped very rapidly by its foreign competitors. Only part of this is true: British shipping is in a parlous state, but the condition of shipping in other countries is equally disastrous. For instance, the comment has been made that round the coasts of Great Britain no less than 757 vessels amounting to nearly 3,500,000 tons gross register are laid up. That at Dartmouth, Falmouth, the Blackwater, the Tyne and in the Gareloch one could walk across on the decks of ships, so closely are they packed together, with the result that over 50,000 of our seamen are looking in vain for work; but that amongst all these idle vessels there is not one under a foreign flag.

This is a very disquieting statement, but the inference is incorrect. The latest returns of laid-up shipping show 3,343,000 gross register tons

under the British flag, but the laid-up tonnage owned by the rest of the world amounts to no less than 8,380,000 tons, of which the United States share is 2,775,000 tons, while Norway has 864,000, Germany 765,000, France 603,000, Italy 564,000, Japan 410,000, Holland 353,000 and Greece 308,000 gross tons at the buoys. That there is none of this foreign shipping to be seen in British harbours is due to the simple reason that when a ship is laid up she is, as a rule, brought to a home port where the crew can be paid off and where the owner can easily keep an eye on his property.

It was also remarked that, although there were no foreign vessels to be seen amongst the unemployed, there were many to be observed in the port of London and in other ports actively discharging and loading while there were English ships lying idle at their moorings. This picture is incomplete unless one remembers that the converse phenomenon is observable in every port abroad. The high seas are a free market and although liners for the most part have one of their termini in the country of ownership, the tramp steamer may trade about the world for an indefinite period without visiting the country under whose flag she sails. The cargo of a vessel running on a regular service is made up of a number of parcels of different commodities shipped at one or more ports and discharged at one or more ports at the other end of the voyage, the number of calls varying with the exporting and importing capacity of the ports which are served and the number of liners on the route; thus while there may be sufficient cargo to fill a vessel from London to Bombay, another ship may load at Hull, Hamburg and Antwerp for the Straits, China and Japan, and similarly homewards.

A tramp steamer, on the other hand, is hired, or as it is called, chartered as a general rule for a full cargo of a homogeneous nature, say of wheat, or rice or ore. Usually she loads in one place and discharges her whole cargo in one place, although in the case of a very large ship, especially in bad times, the option is given of a second or even a third port of discharge within a certain range: the most common procedure is for such a vessel to proceed to some port en route—such as Port Said when coming from the East or the Canary Islands when from the South—for orders to discharge at a port in the United Kingdom or on the Continent between Havre and Hamburg. There may be the option of a port in the Mediterranean or of a port in Scandinavia, but when a general rate of freight is quoted, U.K., Continent, Bordeaux, Hamburg range is the usually accepted basis. Now a merchant in Calcutta who wishes to send a quantity of tea to London books the carriage of it with the agent of one of the regular lines trading between Calcutta and London, or an exporter in Melbourne who has sold a number of bales

of wool to a merchant in Lille books freight in a liner which is scheduled to call at Dunkirk, but the procedure in the case of a merchant abroad who wants to ship seven or eight thousand tons of wheat, or ore, or nitrate, is quite different. As a rule when he charters a ship his cargo is not sold, or at any rate it is not in the hands of a consumer, and he does not know where it will ultimately be discharged. He is closely in touch with the world's markets and knows pretty accurately the value of his goods in the different quarters of the globe, and he has an office or an agent in London who will cable him the exact prices in the various countries at which business can be done in his commodity together with the appropriate rates of freight which he will have to pay. He then calculates what will suit him best and instructs his agent in London to charter a ship and to put the cargo on the market for sale. The agent gets into touch with the shipbrokers on the Baltic Exchange, tells them about the cargo he has got, its nature and quantity, the date when he wishes to ship it and the part of the world to which it has to go, and in due course charters the vessel which is most suitable as regards size and position and which is obtainable at the least freight. If trade is bad and he does not want to begin shipping almost immediately, he will drive a hard bargain, for he will have a large number of ships to choose from. Shipowners of every nationality will compete for the employment, and suitability and price will be the deciding factors. It may be that while the ship is loading he will sell the cargo, but he sells it with the charter, by which he confers all his rights on the buyer, and the buyer, with the possibility of a profitable resale in his mind, exercises his full rights under this document in regard to the nomination of the port of discharge, that is to say the vessel proceeds somewhere for orders, and until she gets them her destination is unknown to everybody. Thus the presence of some Italian ships in London or Greek ships in Hull or Norwegians in Liverpool does not connote the existence of any bias on the part of the merchants any more than the discharging of cargoes from British ships in Barcelona, Marseilles, or Amsterdam indicates a preference on the part of the Spanish, French or Dutch. But whatever the nationality of the ship, the shippers or the consignees, the charter will be in English and will provide for any dispute to be settled by arbitration in London.

Although it has been shown that no special importance attaches to the two circumstances which have been stressed in some of the more sensational daily papers, it is the case that the preponderance in the world's merchant fleets of that owned in the British Empire is not nearly so great as it was. In June, 1914, before trade was upset, first by war, and since the peace by politics, the steam tonnage owned in Great Britain and the Dominions was 20,523,706, while that under all

the other flags in the world was 24,880,171 tons out of a total of 45,403,877 tons, or 45 per cent. British. To-day, out of a world tonnage of steamers and motor ships amounting to 68,722,801 tons, the British Empire is responsible for 23,127,316 tons, or 33 per cent.

This fall in relative proportions may be accounted for in the first place by the losses of the War, when out of a total of some 15,000,000 tons destroyed the share of losses under the British flag was just short of 9,000,000 tons. The second great influence has been the determination of the United States Government to have a state-owned fleet, which has brought about a rise in tonnage owned under the American flag from 4,287,349 tons to nearly 13,000,000 tons. The third factor is in a large degree due to the action of our Government, which in the form of excess profits duty and income tax took from our shipowners the bulk of the large profits they made during the boom period, thereby restricting their activities in the acquisition of new tonnage, while their competitors abroad were able to double their fleets. Partly to remedy this handicap, but more particularly perhaps to give employment in the shipbuilding yards, the British and Northern Irish Governments introduced the Trades Facilities Act under which the State guaranteed the interest at 5 per cent. and principal of money borrowed for ship construction from the public. A great many unnecessary ships were built under this stimulus, some of which were actually for foreign account, the money in such case being borrowed by the shipbuilder. The remedy only accentuated the disease so far as the British shipowner was concerned : the money was taken from him at a time when he might have employed it remuneratively, and lent to him when it was practically impossible to do more than earn the interest required. On the other hand, it is only fair to say that the shipbuilding prices ruling in the years immediately after the War were so high that a great deal of the money then expended was lost in the fall of values consequent on the collapse of trade.

Although the reduction in the British predominance from 45 per cent. to 33 per cent. of the shipping afloat is a serious matter, it must be remembered that this falling off is only relative, and that our holding is well over 2,500,000 tons more than it was before the War and that this addition is alone greater than the total tonnage possessed by any other country with the exception of the United States of America, Germany, France, Japan, Holland, Italy and Norway ; moreover of the American ships a large proportion has been laid up for years.

In quality we have nothing with which to reproach ourselves. In June, 1930, the number of vessels under the British flag, which were capable of a speed of 12 knots and over, was 1,468. Our nearest com-

petitor was the United States with 389, then Japan with 196, and Germany with 195, while the total throughout the world was 3,120, showing a British percentage of 47.05.

In age the following table gives the position :—

	5 years Under 5 years and under 10	10 years and under 15	15 years and under 20	20 years and under 25	25 years and over
British Empire ..	5,054,686	4,967,055			5,408,412
Rest of the World ..	6,811,624	5,551,549			15,315,288
			15 years and under 20	20 years and under 25	25 years and over
British Empire ..	3,289,009	2,106,403			2,301,751
Rest of the World ..	4,535,937	4,018,140			9,362,947

In motor vessels Great Britain has 490, measuring 2,500,000 tons, while the rest of the world has 6,600,000 tons, the nearest rival being Norway with 1,628,000 tons.

As regards specialized vessels, the tankers owned by the Empire were 453 of 2,622,310 tons, the U.S.A., as might be expected, coming next with 394 of 2,513,000 tons, and the third place being filled by Norway with 204 of 1,450,000 tons, the rest of the world accounting for only 388 vessels, measuring under 2,000,000 tons. Till recently the building of tankers was the one bright spot on the shipbuilders' horizon, but the economic situation flattening the curve of petrol consumption, and the laying up of many oil-burning ships, together with the greatly reduced requirements both on land and sea for lubricating oil, have reduced the demand for these ships to such an extent that many which have been recently completed have gone straight from the builders' yard to the lying-up buoys, there to keep company with their older sisters, some of which are lying idle, although hired on time charter by the big oil companies. The carrying capacity of the 345 tankers at present idle is over 3,000,000 tons of oil.

When we come to ships for the carriage of large quantities of refrigerated cargo it is a case of Britain first and the rest nowhere.

There is an impression that in the local trade between our own ports we are being ousted by the foreigner, but for this there is no foundation. Before the War the proportion of this work done by Continental vessels was a shade more than it is to-day, being 1.3 per cent. in 1913, whereas for the past year it was 1.1 per cent.

In 1911 the tonnage passing through the Suez Canal was 63.9 per cent. British, being 11,716,000 net tons register out of a total of 18,325,000; in 1913 this was 60.2 per cent., the British net tonnage being 12,052,000 and the total for all flags 20,034,000. From 1914 to 1919 inclusive

there were special causes which put the British proportion up to between 70 per cent. and 80 per cent., but after these influences had ceased to operate the British percentage in 1920 was 61.7 per cent., in 1922 64.5 per cent., in 1924 59.7 per cent., and in 1929, which was the peak year for the Suez Canal shareholders, the British ships which used the waterway measured no less than 19,114,000 tons net, or nearly 1,000,000 tons more than the total for every nationality in the year 1911. The total figure for 1929 was 33,466,000 tons and the British percentage 57.1. The numbers of the ships which paid canal dues are rather instructive. In 1929 these were 6,061 of all flags, of which the British share was 3,389. This alone was 45 ships more than the total number which used the Canal ten years before. The U.S.A. coasting trade is reserved for the American flag, which means that only under the Stars and Stripes may goods or passengers be carried from San Francisco or San Pedro or any other U.S.A. port on the Pacific Coast to an American port in the Gulf of Mexico or on the Atlantic Coast. In these circumstances it is not surprising to find that the ships using the Panama Canal are preponderatingly American, and that this preponderance has increased with the growth of the United States Mercantile Marine, whether under the ægis of the United States Shipping Board or privately owned. So we find that, whereas in 1921 the number of American transits was 1,210, as against 972 British, by the year 1930 the American figures had risen to 2,885, although the British had only increased to 1,536, the nearest competitor being in each year Norway; in 1921 with 140 transits and in 1930 with 371.

Political considerations or national *amour propre* are doubtless at the root of most attempts to foster by artificial means the growth of a mercantile marine in countries where the soil, or perhaps one should say the water, is not really propitious. Australia, Canada and the United States have each tried the experiment of a state owned fleet. Australia gave it up after a short trial; Canada does not appear too happy with her tonnage, while the tribulations of the United States Shipping Board are notorious. Other countries adopt indirect means, such as subsidies, reservation of the coasting trade, or, as in the case of Portugal, discriminating dues in favour of the national tonnage. Such competition is not of modern growth and has been resisted by Great Britain with success for many years: perhaps its very existence is good for the soul of the British shipowner.

An enemy more difficult to combat is the fact that in many countries the running costs are below those obtaining in our service, and that, as used to be the case in the eighties and nineties, when we parted with our clipper ships to Norway, the ship is a family affair affording a

home and a livelihood to the sons, sons-in-law, nephews and cousins of the managing owner on shore. Various schemes have been considered with the view of inducing owners to sell their old ships to be broken up rather than accept a slightly higher price from foreign shipowners, who will continue to run them, and a Royal Commission was appointed this summer to investigate the position. Their report was that no scheme was workable, and that the ordinary forces of supply and demand must be allowed to operate. At the same time, it would seem that it is a mistake to sell for a small sum a vessel, such as a passenger ship or a freezer, and thereby introduce to a specialized trade a competitor who would never be able to get together the large amount of money necessary for the purchase of a new ship.

A revival in trade will come some day and the problems which are now perplexing the shipowners in every land will be forgotten, but it is a fairly safe prophecy that in view of the recent great advances in engineering, many of the craft which are at present waiting all over the world for better times will never put to sea again.

THE EMPLOYMENT OF FIGHTER AIRCRAFT IN A FLEET ACTION

By LIEUTENANT R. H. BARRETT, R.N.

THE destruction of enemy aircraft in the air is the primary object of fighters. It is with this object in view, therefore, that all operations in which fighters are employed must be worked out, so that the latter may have a full opportunity of performing this duty. Fighters have other functions which they are particularly well adapted to carry out, for example, machine gun and low bombing attacks ; but in a fleet action, where opposition from enemy aircraft is expected, these must give way to the primary function, or the entire air co-operation of the fleet is liable to be neutralized through lack of support.

The necessity for the employment of fighters in a fleet action may be said to arise from the following two sources :—

- (1) The inability of the remaining types of fleet co-operation aircraft to carry out their duties efficiently in the face of an enemy opposition, without support.
- (2) The inability of anti-aircraft fire alone to cope with determined attacks of enemy aircraft on vulnerable targets, i.e., ships of the line and carriers.

In the first instance an all-round improvement in the performance and defensive powers of the aircraft concerned, i.e., bombers, torpedo planes and reconnaissance aircraft, provides an alternative solution to the problem, although even then it is doubtful whether this would be sufficient. At the present time, however, the discrepancy between the offensive powers of a fighter formation and the defensive powers of a similar formation of co-operation aircraft is too great to allow the latter to carry out their duties in the face of concerted attacks. Fighters must therefore fill this gap.

In the second instance there is no alternative to the employment of fighters until anti-aircraft fire has been more fully developed. The loss of a capital ship or carrier is a contingency that must be faced, unless every possible precaution is taken to prevent the enemy developing a massed attack on either of these two objectives.

Before going further into the matter, however, it is as well to review the chief functions of aircraft in an action and to deduce therefrom the part to be played by the fighters in giving support and indirect protection where it will be most needed.

Air Reconnaissance.—This is the primary duty of the air arm of the fleet. Information as to enemy dispositions and movements is of vital importance, and every effort will therefore be made to ensure both the accuracy and continuity of its supply. This can only be done by providing adequately for the safety of the aircraft employed on this duty. For this reason they work normally in pairs, but occasionally, where a single machine might escape observation more successfully, alone. In either case, however, it is not to be expected that they will escape interference from enemy fighters ; hence they will require support from our own fighters at all times when the two fleets are in contact.

Observation of Gunfire.—If aircraft are to be employed on this duty, and if any reliance is to be placed on their reports, they must be able to proceed with their observations in comparative freedom from attack. For this reason it is unlikely that they will work singly or even in pairs, since, in the position which they will have to take up to observe fall of shot, they cannot possibly escape observation. It seems probable, therefore, that they will work in as large a formation as possible consistent with ease in tactical handling. Such a system would allow for unavoidable casualties and at the same time have sufficient defensive powers to beat off sporadic attacks. Against a concerted effort on the enemy's part, however, they would require support from our fighters.

Offensive Action against Enemy Ships.—This would be the function of the torpedo-planes and bombers, their objective probably being a massed attack on a selected portion of the enemy's line. Additional defensive measures should not be necessary in this case, since large formations have sufficiently good powers of defence to carry them through everything but an overwhelming superiority of fighters—a form of opposition which is unlikely to be met with in a fleet action where the numbers of the latter are very limited.

Defence of our own Ships, especially Aircraft Carriers, from Air Attack.—In a maritime war the loss of a carrier would mean a sudden decrease in air strength at sea, and its results would not, in consequence, be confined to the fleet alone. Similarly the loss of a capital ship by air attack is a possibility that cannot be ignored with safety. A well-defined system of defence must, therefore, be adopted to guard against either of these eventualities. This is a matter in which fighters and anti-aircraft fire can alone be effective.

The duties of fighters may, therefore, be summarized as follows :—

- (1) To give support to reconnaissance and other aircraft operating over the enemy's line.
- (2) To protect aircraft carriers and capital ships from air attack.

The disposition of the available fighters to carry out these duties must now be considered. The sphere of action falls naturally into two parts. The first, which may be called *Area A*, consists of that part of the enemy's fleet in which the main body is situated and from which his battle line will be formed. *Area B*, the second part, is a similar area over our own fleet. In *Area A* our aircraft will be engaged in reporting movements and fall of shot, and it will be the duty of the fighters in that area to see that this work is not unduly interfered with. In *Area B* the fighters will have to contend with enemy reconnaissance aircraft and formations of bombers and torpedo-planes, all of which will have objectives in our fleet similar to those our own co-operation aircraft must have in the enemy's fleet. Fighter patrols will, therefore, be necessary in each area, their objectives being briefly as follows :—

In Area A :

- (1) The prevention of attacks by enemy fighters on our co-operation aircraft. This can only be done by forcing the enemy fighters to accept action in all circumstances.
- (2) In the absence of enemy fighters, other enemy formations may be attacked, provided such action does not prejudice the success of (1).

In Area B :

- (1) The interception and destruction of enemy formations whose objectives carry them into this area. In particular the development of a concentration of enemy aircraft in any part of the area must be prevented.
- (2) The interception and destruction of enemy reconnaissance aircraft working in the area.

To ensure that the entire area in each case is kept under observation, it is necessary to delimit each area relatively to the battle line, and to give each patrol a definite part of the area to work in, subject, of course, to the needs of the general situation at any time. Although evasion is by far the most important factor that the fighters will have to deal with, it is unlikely that a large concentration will pass unnoticed. Single reconnaissance aircraft will probably prove to be the most difficult to bring to book, but here again the comparatively small area in which they can work successfully should help in their detection.

With regard to the respective merits of "interception" and "continuous patrol" methods for fighters in *Area B*, the former, with its advantages of conserving the energies of the fighter personnel, might prove of value. But in view of the probability that the duration of the action will be short, it would appear a sounder policy to send off all the fighters available for this area with orders to maintain their patrols within reasonable limits of fuel exhaustion.

The allocation of fighters in proportion to the respective claims of the two areas is a further problem which arises in this instance, as indeed it does in all forms of air warfare. In this case it is likely to become acute, owing to the relatively small number of fighters available. Some indication of the policy to pursue may be gained from a study of the enemy's air strength, e.g., the ratio of fighters to other aircraft; his dependence on aircraft for fire control; reports of his making use of any form of "striking force," and any other characteristic that may indicate his line of action, such as morale, etc. Theoretically speaking, the greater number should be allotted to *Area A*, but safety of carriers or of capital ships may be considered paramount in importance, hence direct defensive measures for the latter will have to be provided at the expense of those in *Area A*. On the other hand, in a fleet action where time is a most important factor it is obvious that any form of offensive action is preferable to a static defensive attitude. If, on this account, the defensive area is allowed only a limited force, some reliance will have to be placed on anti-aircraft fire, and the possibilities of a barrage may well be considered as a last resort. The success of the fleet is, however, the main consideration and, if an air offensive of some magnitude is necessary, the possible sacrifice of a carrier must be accepted with the withdrawal of all fighters from *Area B*.

This brief survey of the part to be played by fighters in a fleet action will indicate the fact that, if complete protection is to be given to our co-operation aircraft and capital ships, a very large fighter force will be required. Limitations of carrying capacity necessarily prevent more than a bare minimum being available, and even this is liable to be diminished in response to the need for more co-operation aircraft. But the fallacy of such a policy should be obvious; for it is clear that until reconnaissance aircraft and similar types are capable of holding their own against attack from the air, their degree of usefulness to the fleet is only proportional to the degree of support they obtain from the fighters. In other words, the number of reconnaissance aircraft that can be used efficiently is directly limited by the number of fighters available to ensure that their work is undisturbed. The numbers of co-operation types to be carried should, therefore, be governed by the number of fighters available.

Increase in the defensive powers and general performance of the former types will eventually render the presence of fighters unnecessary, as also will the progress made in anti-aircraft gunnery. Meanwhile fighters are indispensable to successful air co-operation and, without them, the sacrifice made in the equipment of the fleet in other directions will have been useless.

and to assist in the preparation of naval and military subjects will be given as mounted sets of slides during military instruction, and arranged in visual albums and also suitable for lectures. These subjects will be selected from the collections of the Royal Naval and Military Museums, and may be used for technical training, short courses of study, or for general interest.

TALKING FILMS FOR INSTRUCTION IN THE SERVICES

TALKING films have suggested a new method of "promoting and advancing naval and military science," and two demonstrations of their use for this purpose have been given in the Institution's theatre. The first, on 5th May, 1931, was by arrangement with the Gramophone Company, Ltd.; the second took place on 13th January last by arrangement with the Western Electric Co., Ltd. The Institution was indebted to these two firms for lending their services and apparatus at these meetings, which proved of exceptional interest.

The first demonstration showed the potential uses of the talking film for instruction generally; the second was confined to purely Service subjects, and applied more particularly to: (a) class instruction; (b) technical exercises; and (c) tactical operations.

Class Instruction.—Two pictures showed the use of the talking film for instructing a class in stripping and assembling a machine gun and a field gun. The fact that every member of a large class can see and hear equally well is one of the great advantages of this form of instruction.

Technical Exercises.—A film showing the operation of aircraft in a carrier at sea, including flying off and deck landing, was accompanied by a running commentary; another demonstrated the whole procedure on board when a submarine is submerged and brought to the surface, including the orders given for each operation. Pictures of this class would do much to familiarise officers and men, particularly those of another Service, with exercises which they may never have the opportunity of seeing in peace time, but which may concern them, especially in combined operations, in war.

Tactical Operations.—The first of the two pictures in this section, and one of those lent by British Movietone News, was a remarkably good record of formation flying. Although not particularly instructive, the fact that "sound" was included, served to remind the audience of the limitations of the silent film where interference with orders and communication due to noise is not apparent.

The second and final picture, lent by the War Office, with a running commentary which had been superimposed by the Gramophone Company,

showed and described "a well organized trench raid." This demonstrated admirably the value of this form of instruction, and its potentialities for bringing home to innumerable members of the fighting Services the lessons of far larger operations, such as fleet tactics, Army manoeuvres, and Air Force exercises. At present the instructive value of operations which can only take place occasionally is restricted to those actually present, and even they may only get a limited impression of what has taken place.

A recent Admiralty order advises the fleet that efforts are being made to arrange a scheme on a co-operative basis for the supply of sound apparatus and films to ships. Although these are intended primarily for recreational purposes, they may also prove of value for instruction.

The Commandant of the R.A.F. College, Cranwell, in his Report at the passing-out inspection in December last, said: "It is of interest to record the recent installation of sound film apparatus in the Command cinema. The lecture given by Flight-Lieutenant Stainforth was the first at Cranwell to be illustrated by sound films. The more extended use of this system in the future presents distinct possibilities, not only for providing an interesting illustration to a lecture, but also for instructional and demonstration purposes."

Whatever the developments of this form of instruction, however, it can only supplement personal experience; it must on no account be regarded as a substitute for practical knowledge of weapons and their uses, and the actual handling of men and forces at sea, in the field and in the air, which alone can produce the true leader in war.

THE ARMY MEDICAL SERVICE IN WAR

By MAJOR G. WILSON, O.B.E., M.C., M.B., R.A.M.C.

Wednesday, 4th November, 1931.

LIEUTENANT-GENERAL SIR HAROLD B. FAWCUS, K.C.B., C.M.G., D.S.O.,
D.C.L., M.B., K.H.P., Director-General, Army Medical Services, in the
Chair.

THE CHAIRMAN introduced the Lecturer.

LECTURE.

IT has been my privilege during the past two years to come into contact with many of the younger fighting and administrative officers who are closely associated with the current reorganization of the Army. This contact has brought with it a very clear appreciation of the spirit of co-operation that now links the fighting and administrative branches. It is with this spirit of co-operation in mind that I have framed the following remarks on the Medical Service. The consideration of this Service in war, however, is so closely bound up with its peace-time activities that we must first summarize its peace-time functions.

The regular Medical Service of the Army at present has an establishment of approximately 850 officers and 3,600 other ranks of the Royal Army Medical Corps. Prior to the outbreak of war in 1914, it consisted of 937 officers and 3,760 other ranks, but in those days no other ranks R.A.M.C. were employed in India. It is clear, therefore, that there has been a reduction in establishment as a natural corollary to the reduction in other arms and branches of the Service. In addition to the officers and other ranks of the R.A.M.C. there are the ladies of the Queen Alexandra's Imperial Military Nursing Service and the officers and other ranks of the Army Dental Corps, formed since the war.

The general duties of the Medical Service in peace time are:—

- (1) The prevention of disease.
(2) The professional care and treatment of the sick and injured.

It is not proposed to recapitulate at length any existing regulations, but it is necessary to refer briefly to the duties with which the officers of the Medical Service are charged. These are :—

- (i) The duty of recommending to general and other commanding officers precautionary and remedial measures on all matters which may in the opinion of the medical branch conduce to the preservation of the health of the troops and the mitigation or prevention of disease in the Army.
- (ii) The professional treatment and care of the sick and injured, the administration of military hospitals, the provision and replenishment of medical equipment and the preparation of medical statistics.
- (iii) The command of all patients in military hospitals or in quarters on the sick list, of medical units and establishments, and of such officers and soldiers as may be attached thereto.
- (iv) The training of the R.A.M.C.
- (v) Certain duties relevant to the determination of the physical fitness of candidates for commissions in the Army, of recruits and others.

Although the present peace establishment of the R.A.M.C. bears no definite relationship to the requirements of any expeditionary force, it would be idle to suggest that it does not form a vital nucleus for the Medical Service of the Army in war. It is an establishment calculated virtually on a "one-man-one-job basis" according to the needs of our home and overseas garrisons. The Medical Service is, therefore, a purely peace-time organization functioning in units not organized for war. I shall refer to this statement when dealing with preparation for war. Professionally the Medical Service has had to keep pace with the high degree of specialism which has entered into the practice of medicine. Specialism is a feature of modern development and is evident in all branches of life. This increase of specialism in the Medical Service has not been restricted to the officer branch, but has had its repercussion amongst the other ranks personnel of the R.A.M.C., a considerable percentage of whom now require to be trained in such special subjects as X-rays, laboratory work, massage, etc., and for whom, when qualified, special tradesmen's grades are recognized for the purposes of pay. Specialism has resulted in increased expenditure on the necessary equipment and its upkeep, as well as on special accommodation, but at the same time there has taken place a greater centralization of military hospitals and the abolition as far as possible of outlying establishments.

As regards professional training, young medical men entering the Service undergo a course of training at the Royal Army Medical College at Millbank, in which special instruction is given in such subjects as Military Hygiene, Military Surgery, Tropical Medicine, Bacteriology, Recruiting Duties. This course lasts three months, subsequent to which these officers undergo a further period of instruction for two months at the R.A.M.C. Depot and Training Establishment at Aldershot. Here instruction assumes a more military aspect and serves as an introduction of the young medical officer to military life. Special attention is directed to the conditions of the soldier's life, his food, clothing, discipline, etc. Instruction is given in physical training, drill and equitation, and particular attention is directed to practical military hygiene.

Officers, who have served (one tour) abroad and have a total service of between seven and twelve years, attend a senior Course of Instruction at the R.A.M. College. This course, which lasts five months, is a most comprehensive refresher course in professional work—what in civil life would be designated a post-graduate course—and it involves amongst other things attendance for clinical instruction at some of the great London hospitals. Officers who pass this course with distinction are permitted to specialize for a further period of four to five months in purely professional subjects, and during this period of study frequently acquire additional medical degrees.

R.A.M.C. other ranks on enlistment undergo six months' training at the R.A.M.C. Depot and Training Establishment at Aldershot. The atmosphere of training in the R.A.M.C. Depot is comparable with that obtaining in any regimental depot, with the exception, of course, that the technical duties differ.

As regards the prevention of disease in the Army—which is a primary function of the Medical Service—it must be admitted that a high standard of efficiency has been reached, and by virtue of the co-operation of all ranks it has been possible to maintain this standard in peace time with the minimum of machinery for the purpose. This state of affairs has only been achieved by a very continuous policy in the training of Army medical officers in the profound importance of military hygiene and by the spread of knowledge to officers and other ranks throughout the Army, who now have a much wider appreciation of the causes and prevention of disease.

The professional care of sick and injured in peace time, I may say, is a function that will always have a strong personal aspect, and for this very reason is provocative of criticism. I will only remark at this stage that the enlisted soldier, whether on duty or furlough, is *entitled* to medical attendance and admission to hospital when necessary, at

the public expense. Not so the officer, whose only degree of entitlement is admission to hospital subject to his disability being attributable to military service. All other treatment afforded to the officer, whether in quarters or in hospital, is in the nature of a privilege.

To refer to the subject of criticism of medical treatment, the officers of the Medical Service are well aware that "it is human nature to criticise one's doctor, and nothing on earth will alter it." Most medical officers being but human themselves prefer such criticism to be constructive. Summarized briefly the Medical Service of the Army has undergone very considerable reorganization since the termination of the Great War. There has been a close scrutiny of all hospital establishments, not alone with a view to reduction in officers and other ranks, but with a view to more economical administration. Many small military hospitals have been abolished, and as far as possible centralization in the larger military hospitals has been exploited. The average number of unoccupied equipped beds in military hospitals is under constant review, and any increase over what is estimated to be a reasonable margin for emergencies is immediately readjusted.

The chief features regarding treatment have been the increase in specialist departments and the very valuable addition to our larger hospitals of out-patient departments, where specialist advice and treatment can be obtained and special examinations carried out without necessitating admission to hospital. These specialist departments are very fully used, as the modern soldier, being better educated and more fully alive to the amenities of civil hospital organizations, expects and receives a standard of treatment far higher than that which obtained in the past. This is the outcome of civil progress. Officers and other ranks of the R.A.M.C. are very fully employed, and it must be remembered that training of the other ranks R.A.M.C. in the many highly technical trades of the Corps throws an additional burden on the officers of the R.A.M.C. and the ladies of the Q.A.I.M.N.S.—a fact which is not always remembered by outside observers.

Let us now consider the functions of the Medical Service of the Army in war. In Field Service Regulations, Vol. I, Section 68, we find generalizations on the maintenance of health and the maintenance of fighting strengths of units. We read that it is the duty of the Medical Service to advise commanders who are responsible. We go further and find definite responsibilities allotted to the Medical Service for :—

- (i) The collection, professional care and treatment of the sick and wounded in the theatre of operations and for their evacuation.

- (ii) Advice to commanders with regard to the location of medical units.
- (iii) The supply and replenishment of all medical equipment.

This is the section of F.S.R. which is indexed to define our responsibilities, and it is remarkable for two striking omissions.

Firstly there is no clear and unequivocal statement that the regular organization of the Medical Service is inadequate to fulfil its function in the field in any but lesser engagements. There is no statement that a supplementary organization must be employed to meet heavier demands, and that this supplementary organization is agreed to in principle and is the responsibility of the commander to provide. The ordinary individual reading this section for information assumes that the Medical Services are fully equipped to carry out their duties under all conditions. It is only by careful scrutiny of F.S.R. that we find the references which admit the necessity of this additional organization. Who can review the limited capacity of our field medical units, for example, without realizing that the resources of personnel, equipment and transport require supplementing in the stress of a campaign of any magnitude? These additional requirements are provided by other services or departments when authorized by the staff, and it is evident that there must be close co-operation between the staff and administrative services if the medical organization is to function efficiently. Would it not be better to enunciate more clearly in Section 68 the existence of this divided responsibility—so that the attention of all involved might be directed in peace to this system of co-operation which is essential in war?

The second omission in Section 68 is the absence of reference to the underlying object of the Medical Service in war—namely the conservation of man-power. There is no service in the Army with the like responsibilities of the Medical Service in attaining this object. It may be said that this object underlies the organization of the Army as a whole and is in the province of a commander. There is the familiar statement in F.S.R., Vol. I, Section 1, paragraph 1, which indicates the necessity for the minimum expenditure of time, men, material and money in the furtherance of the approved plan of campaign. Nevertheless, the capacities of an efficient Medical Service to conserve man-power are only being fully realized in the light of experiences of the Great War. The price of a campaign is dependent on Government policy, and in his turn a commander presumably fixes a price he is prepared to pay in the attainment of any particular object. His decision cannot fail to be influenced if he knows that he has an efficient organization for the sole purpose of conservation of man-power for future use. With the enun-

ciation of this principle of conservation of man-power as the definite object of the Medical Service in war we gain a greater sense of proportion as to its functions.

For generations the Medical Service in war has been regarded by the lay mind as a sympathetic organization, a gesture towards the alleviation of the sufferings of war. It would almost appear that this sympathetic conception has, owing to lack of a wider outlook, been unconsciously exploited by Government and Army authorities with a lively expectation of assistance to come from sources other than the Treasury.

These experiences have shown that an efficient Medical Service by the prevention of disease, the expeditious evacuation of casualties to suitable, well-equipped accommodation, improved methods of treatment, the reduction of the period spent in hospitals for sickness or wounds, and a greater knowledge of war stress and strain on the individual, cannot only assist in maintaining a high standard of morale, but can influence profoundly the problems of man-power and reinforcements which are the concern of higher authority. In addition the information which is gained in the performance of these services can be translated to the uses of the General Staff, and may be of inestimable value in gauging the man-power of an enemy at various stages of a campaign. The personnel of the Medical Service in war will always retain their sympathetic ideals in the performance of their functions; but in the light of modern knowledge the medical organization should be regarded as a scientific weapon placed in the hands of a commander for the furtherance of victory.

PEACE-TIME PREPARATION FOR WAR

Under the conditions which have arisen since the War the medical officers of the Army are so fully engaged in their professional duties that they have little opportunity of studying the wider problems of the Medical Service in war. As already stated they work in units which are not organized for war. To begin with, field training of the Medical Service is to all intents and purposes non-existent. Officers occasionally attend staff exercises and what are termed medical staff exercises, the latter being based on schemes which have been approved by the Staff, while an officer with A. and Q. experience is usually made available for assistance in their direction. These exercises are limited in number and produce a temporary stimulation of interest in the problems of the Medical Service in war, but such stimulation rapidly dies down with the press of purely professional work, so that medical officers find it well nigh impossible to keep in the stream of current thought and advance in military and military-medical matters. There is no field training

of the medical units employed in war, so that neither officers nor other ranks get the outlook of active service. It is true that a certain number of medical officers attend manoeuvres for attachment to regimental units, but here again the ordinary professional duties involved by the medical charge of several units allow little opportunity to watch and gain information of the tactical employment of such units, although a general knowledge of these matters is essential for intelligent field medical work in forward areas.

These restrictions are doubtless due in a measure to economic factors, the cogency of which is fully appreciated by the Medical Service, but they emphasize very clearly the situation which will inevitably arise, when medical officers accustomed to an immobile and peace-time outlook will be translated to the mobile, perhaps highly mobile, conditions of war. It pre-supposes a power of adaptation beyond anything which is expected of other branches of the Army, and it is an undoubted fact that, when this situation does arise, a high degree of efficiency is expected. Until recently other ranks of the R.A.M.C. have been largely composed of men serving on a 3 and 9-year engagement, and it gives food for thought that thousands of these have passed to the Reserve without ever having seen a field medical unit.

The only officers in the Medical Service who are in the position to devote time and study to the problems of the Medical Service in war are those who are engaged in certain administrative duties and who, by virtue of their appointments, are in closer touch with the military organization. The number of these officers is small, and, as a rule, they are the older men, who even with the best will in the world may not be available for a future war.

No account of the preparation of the Medical Service for war can be instructive without some reference to the assistance which we all have reason to hope will become available in war. As mobilization is not under discussion, reference is only made to assistance from voluntary sources. We have no reason to suppose that when a future war of any magnitude develops the medical profession, a large number of whom are already serving in the Territorial Army, will not, as in past wars, provide many officers. Some of these we hope will be in possession of Certificate B. (Medical) of the Officers' Training Corps. It is not too optimistic to conjecture that there will be no dearth of highly trained physicians and surgeons. On a voluntary basis the period after the declaration of war at which these officers would become available, must depend to some extent on their private commitments at the time of the outbreak of war, and to some extent on public feeling as regards the policy of the war.

The most important assistance in the form of other ranks arranged for in peace time, is the Military Hospitals Reserve, which is raised by that great organization, the St. John Ambulance Brigade, and by the St. Andrew's Ambulance Corps. This Reserve, which consists of carefully chosen men highly trained in first aid, ambulance duties and elementary nursing, replaces in our military hospitals at home, R.A.M.C. other ranks required for field duties. The value of this reserve was proved in the Great War.

An additional source of voluntary assistance is that which is authorized in the scheme for Voluntary Aid Detachments. These detachments are organized to supplement the medical services of the forces of the Crown in the event of a general mobilization which involves the embodiment of the Territorial Army. It is stated in the scheme "that the Medical Services of the forces of the Crown are sufficient to meet ordinary peace requirements but they lack certain reserves on general mobilization and possibly also on partial mobilization and, therefore, these services may require the assistance of detachments." The V.A.D. Council, which administers these detachments in peace time, is a highly representative Council set up by the Army Council.

The detachments are trained and maintained with the specific object of providing personnel for assistance mainly in distributing zones. Women's detachments greatly exceed those of men. The organization also contains a considerable number of "mobile" members, who would be available for service abroad.

Material assistance to the Medical Service in the course of peacetime preparation for war does not arise. It develops during war proportionately to the public sympathy which is aroused. It requires skilful direction and may assume colossal proportions, as in the Great War. Its value cannot be described in words ; it is inestimable. Except, however, where it takes the form of transport it has only a modified influence on the pivotal problems of the collecting and evacuating zones.

MEDICAL CONDITIONS IN A FUTURE WAR

Current opinion points to the probability that in a future war the Army will be composed of formations similar to those employed in the past. It will, we are told, be smaller—at least in the initial stages of a war—more mobile and more efficient, and it will have armoured formations and units possessing a high degree of mobility. It will, in addition, have the assistance of a more highly efficient air arm.

The advance in mechanization, which is necessary to produce that additional mobility, and the greater use of mechanical weapons draws immediate attention to the controlling factor, man. The Army will

contain a large percentage of fighting mechanics. Longer service will be required to obtain the necessarily high degree of specialism.

Prevention of wastage in war will assume greater importance than ever before, and the demands on industrial mobilization to maintain mechanical efficiency in the field will have a close bearing on the problem. There is world-wide evidence of the power of adaptation of man to the machine.

In the Army general attention has been directed to the change which mechanization is likely to produce in the soldiers' mentality, and some particular attention has been given to the occupational effect of life in certain highly mechanized units. From the evidence obtainable it appears that the healthy soldier can adapt himself in a remarkable fashion to the stress and strain involved in the handling of highly mechanized weapons in *peace time*. It must be admitted, however, that the speeding up of mental and physical processes under the conditions imposed by certain modern machines of war must result in some cumulative strain. What additional effect actual conditions of war will have on this problem has yet to be experienced. It may depend on psychological rather than on physical reactions.

The use of tanks and armoured cars presents a new problem in the collection and evacuation of casualties. This question is, for obvious reasons, unsolved; armoured formations are still in a highly experimental stage, and war alone can bring the real solution. It is interesting, however, to speculate on this problem and review our present ideas. Generally speaking, the collection of casualties from armoured formations represents a similar problem to that of collection of casualties from cavalry formations. The cavalry field ambulance which is mechanized and highly mobile requires a brief description. It contains a headquarters which is capable of forming a main dressing station and four small but highly mobile sections. Each of these sections consists of a light lorry to carry medical equipment and personnel, a medical officer in a light car and a motor cyclist for purposes of intercommunication. Each section is capable of forming an advanced dressing station, where wounded are collected from regimental aid posts or points indicated by the regimental medical officer. Evacuation to the main dressing station is carried out by motor ambulance cars allotted as necessary to each section. There are twelve 6-wheeled motor ambulance cars with the headquarters of a cavalry field ambulance for this purpose and a small reserve of stretcher bearers. The successful employment of this unit with cavalry is dependent on the maintenance of a close touch between regimental medical officers and these highly mobile sections which must be pushed well forward. Cavalry field ambulances are provided on a

basis of one per cavalry brigade. Here then we have a unit which by virtue of its mobility and organization is theoretically suitable for employment with highly mobile formations. Casualties in tanks, however, cannot be removed while the tanks are in action, and agreement is yet to be reached as to when and where the most practicable opportunity of doing so presents itself. Let us consider a tank battalion taking part in an independent attack by a tank brigade. We will suppose the battalion is advancing in bounds on a frontage of 800—1,000 yards. Each company is given a definite objective for each bound, and will presumably rally after each attack before proceeding to the next objective. Is it possible to remove wounded when these rallies take place? It may be so if a rally is protected by smoke and time is available. Failing this, wounded in tanks will have to remain there as long as the tanks are in action, and any removal of the serious cases will require to take place at the first possible opportunity that medical assistance can be made available after withdrawal of tanks from action. This will necessitate the pushing up of medical vehicles and personnel as rapidly as military considerations will permit. The rapidity of bringing medical assistance to tank casualties will depend on the nature of the ground over which the tanks have passed, the degree of clearance of the enemy which has been effected and on other factors peculiar to each action. Under present arrangements a mechanized field ambulance would accompany "B" echelon of an armoured brigade, from which we may infer that wounded cleared from the battlefield would be diverted to a main dressing station formed by the headquarters of the ambulance at that locality where "B" echelon join "A" echelon after the conclusion of an action. Evacuation of casualties from this main dressing station to the casualty clearing station would be carried out by motor ambulance convoy, making full use of protection afforded to supply columns of the formation. When armoured brigades are operating with cavalry and infantry, and particularly in those situations where objectives secured by tanks are rapidly occupied by other arms, it would seem advisable for tanks to seize every opportunity of shedding casualties as occasion permits. Medical assistance in these cases will be more rapidly available. Casualties occurring amongst armoured car personnel may offer difficulties on occasion, particularly during long-distance reconnaissance. In this latter case it may not be possible to obtain assistance from the nearest medical unit in time to extricate casualties; neither may the chances of retrieving wounded justify the despatch of motor ambulance cars and personnel long distances without a reasonable prospect of success. Nevertheless, armoured car units must rely on the nearest medical units for evacuation of casualties, and success in their removal will depend largely on accurate information and the least loss

of time in intercommunication. Normally motor ambulance cars will not be detailed to armoured car regiments, but it is easy to conceive situations where such units will require to be self-contained.

Under certain circumstances serious casualties in armoured cars will have to be left in enemy or disputed country, provided reasonable comfort and attention is assured, but generally speaking, in the immediate absence of medical transport, the tendency will be to retain wounded in armoured cars until they can be removed in the normal way. First aid equipment is provided in both tank and armoured car, and the percentage of men trained to utilize it is somewhat higher than in other fighting units. But whereas the medical officer of an armoured car regiment is situated so that he can be of some assistance in action, the medical officer of a tank battalion is relegated to "B" echelon. Whether the future development of the tank arm will necessitate the carriage of unit medical officers in armoured vehicles with some small accommodation is a controversial point. What is perhaps still more controversial is the view taken by some that a percentage of the ambulance cars of the mechanized field ambulance should be armoured.

In the consideration of armoured formations there is a striking analogy between the tasks and organization of the Medical Service and those of the Royal Army Ordnance Corps. Unfortunately the medical "recovery" problem has not been solved, and spare parts for the human machine cannot be carried with a unit. Maintenance of morale underlies the whole question of removal of wounded from armoured formations.

FIELD MEDICAL ORGANIZATION TO MEET NEW CONDITIONS

Knowing the dangers of prophecy, the consideration of the field medical organization to meet new conditions of modern war can only be undertaken on broad lines. Details of organization will develop in peace time according to the reorganization of the Army as a whole. We can, however, broadly outline what the effect of that highly increased mobility of the Army will be on medical arrangements. The general problem of prevention of disease remains unaltered. We can enter upon no future war with any degree of confidence unless the medical organization for the prevention of disease is in a high state of efficiency. Preparation for war will involve the very closest consideration of all factors likely to influence the health of troops, and it will be possible, in the light of modern knowledge and recorded experience, to estimate with greater accuracy than ever before the wastage which may be expected from endemic and epidemic disease. This will enable truer forecasts of the requisite material and accommodation to be made, and will give greater confidence to other branches of the Army in framing

their plans for the maintenance of a force in the field. It is fortunate for the Army that the peace-time Medical Service provides a special organization for the prevention of disease. This organization is at present our greatest preparation for war. Its necessity was slow to be recognized in the past, but its permanency is now assured on its merits.

Associated with the hygiene branch of the Medical Service in the prevention of disease is the pathology branch, whose successes in the realm of protective inoculation constitute a first line of defence in the field which no commander can afford to ignore.

The field medical organization for the collection, evacuation and accommodation of casualties under conditions of greater mobility in a future war will necessitate a progressive review of our medical establishments. Advanced dressing stations and main dressing stations will require to be more mobile. They will be opened and closed with greater frequency. Our first gesture towards this necessity is in the present cavalry field ambulance, which is completely mechanized, and there is every indication that the field ambulance for employment with infantry divisions may in its turn assume a somewhat similar organization. At present it contains horsed and mechanical transport, but its personnel marches on foot. Side by side with the motor ambulance car we see the horsed ambulance wagon, a relic of the past which still receives the commendation of some. Yet in view of modern developments it is hard to conceive where the horsed wagon can function more efficiently than the mechanical. There is, however, no doubt that the horsed wagon has its adherents, particularly if a light wagon is employed.

If the field ambulance is mechanized it will require complete reorganization, and it is the view of many that the personnel should be carried in vehicles on the line of march. During the more static conditions of war this additional transport might be absorbed in a M.T. reserve. War establishments of field ambulances since the War have shown a decided tendency to reduce the number of stretcher bearers, and this is in keeping with the policy of reducing the "carry" of wounded men by hand by bringing up vehicles as far as possible. The use of a 6-wheeled motor ambulance car with some cross-country performance supports this theory.

Rapid clearance of wounded from battlefields under more mobile conditions of war can only be achieved by ample ambulance transport, and if the present field ambulance is mechanized, ambulance cars will be required on a generous scale to meet the requirements of the wider fronts from which evacuation is to take place.

While we may expect advanced dressing stations to be sited further forward than in the past, main dressing stations are likely to be further

back, and the distance of casualty clearing stations from main dressing stations will in most cases be considerably increased. The practicability of removing wounded long distances by motor ambulance convoy to casualty clearing stations is undoubted, but it will be expensive in transport and detrimental in many cases to the wounded. Except with formations operating at a long distance from the main body, and with no other means of evacuating wounded, we are unlikely to see "carries" of more than 50 or 60 miles by motor ambulance car. It is more than probable that a chain of casualty clearing stations will be established, and leap-frogging by these will be necessary to meet the changing conditions of operations. To achieve this result satisfactorily the establishment and organization of the casualty clearing station will require drastic review. The casualty clearing station, as it stands, is a notoriously immobile unit, and is the bugbear of all staff exercises of the present in which mobility of the forces engaged is a basic feature. F.S.R., indeed, visualize the circumstances under which a chain of casualty clearing stations might be necessary, but the present form of these stations is definitely not adapted to movement away from rail.

It is at this stage that some reference must be made to the use of aerial ambulance transport. The study of the different types of battle casualties in the Great War shows that there is a fairly constant percentage of casualties whose only hope of recovery is operation at the earliest possible moment under suitable surroundings. The claim of the officer or man to the only hope of recovery will make a demand for this form of transport in any future war.

Aerial transport of casualties is no innovation; it has been tried successfully on a large scale as far back as 1923, when the French Army was fighting in Morocco. The officer commanding the French Air Service in Morocco has stated that this method was "neither more dangerous nor more expensive than other modern methods of transport of sick and wounded. It has the further advantage of enabling commands to evacuate the wounded rapidly to the rear, thus relieving the transport columns and economizing in the protection of these columns. Further, from the technical point of view, it gives greater degree of mobility to columns during operations by freeing them from the necessity of providing transport of wounded and sick."¹ Amongst the theatres of war in which the British Army might be employed there are certainly some in which aerial transport of casualties will economize both road transport and protective troops. In future war we shall see an

¹ "L'Aviation Sanitaire au Maroc." By Lieut.-Colonel Cheutin, Commanding the Air Service in Morocco. Published in *L'Aviation Sanitaire*, November, 1923.

immediate demand for aerial ambulance transport, particularly in those countries where roads are bad and rail accommodation strictly limited.

Field medical organization must of necessity vary with the theatre of operations and any alterations in field medical units which are contemplated in peace must be strictly governed by the necessity for elasticity in war. The experiences of the Great War vastly improved our knowledge of rail, river and sea transport of casualties, so that we can face these problems of a future war with a sound appreciation of past errors in their utilization. What gives the Medical Service most cause for concern is the present high degree of specialization amongst fighting troops. Will there be a margin of personnel and transport which is likely to be made available for supplementary assistance to the Medical Service in times of stress? Failing this margin the collection and evacuation of casualties from forward areas will still be the same stumbling block which has given rise to so many difficulties in the past.

One point about the provision of general hospital accommodation in a theatre of war demands careful attention. In the past it has almost invariably occurred that general hospitals were the last units to be embarked with expeditionary forces. This has resulted either in the immobilization of field medical units which were rendered unavailable for the battle area or in the unnecessary evacuation from the theatre of war of cases of minor sickness and disability. Serious wastage from a force may thus occur in the initial stages of a campaign. In a future war the loss of highly trained personnel in this way will assume an even more serious aspect; it can only be guarded against by arranging for a definite percentage of general hospital and convalescent depot accommodation to be despatched with advance troops.

CO-OPERATION WITH OTHER BRANCHES OF THE ARMY

I shall restrict myself mainly to a consideration of the co-operation necessary to ensure the rapid collection, evacuation and accommodation of casualties in the field. Co-operation in the prevention of disease constitutes a problem of its own, and presents somewhat different features in that the dangers of disease are constantly being brought home to all in peace. Attention is focussed on outbreaks, their causes and prevention. Legislation for the prevention and control of certain diseases is world-wide and its necessity is admitted. Army officers as a whole, therefore, see the necessity for the rigid attention devoted to the prevention of disease in war. Furthermore, many officers have served abroad and have been brought face to face with the realities of disease and its fulminating possibilities. An outbreak of cholera, for instance, brings

about a co-operation which is strengthened by the instinct of self-preservation.

The efficiency of medical arrangements for the collection and evacuation of casualties is vitally dependent on a successful co-operation with other branches of the Army through the medium of the staff. It is on this co-operation that everything hinges. In the past there has been an impression in the public mind, and in the minds of many Army officers, that so long as plenty of good physicians, surgeons and nurses were forthcoming in the theatre of war, all would be well. This is typical of the line of thought which conjures up a vision of the doctor's personal function, but overlooks the overwhelming importance of the organization which is necessary to enable him to perform it. The Medical Service may enter a war with the finest professional teams which a country can provide, yet it is of no avail unless there exists a smooth system for the collection, rapid evacuation and suitable accommodation of casualties. This is borne out by history and explains in a few words the disasters and misunderstandings which have been laid at the door of the Medical Service in past campaigns.

What then is the secret of success? It lies in a greater mutual understanding between the staff and the Medical Service. On the part of the staff it requires appreciation of medical problems and their influence in the successful prosecution of a campaign, in addition to an expert knowledge of the medical organization in the field. On the part of the Medical Service it requires, in addition to professional attainments, a sound knowledge of military organization and of the difficulties of movement and maintenance common to the Army as a whole.

The Medical Service fully realizes that fighting considerations come first of all, and that demands for supplementary assistance have to be considered in the light of their influence on problems of more vital importance in the conduct of operations. Given the necessary information by the staff, an administrative medical officer is in a position to estimate his requirements in any given situation with considerable accuracy. If after careful consideration requirements cannot be provided, owing to the exigencies of the Service, there should be recognition of this fact when the additional price of operations throws the limelight on the Medical Service.

To illustrate in somewhat further detail the pivotal importance of the collecting and evacuating zones let me quote to you from the final volume of the Medical History of the War. It will show you the typical circumstances in which the co-operation of which I speak is necessary,

and it will at the same time direct your attention to an official publication¹ which is probably the greatest contribution to military medical knowledge which has ever been placed in the hands of an Army. We read :—

" The administrative medical officer of a division or a corps, on being handed an estimate of battle casualties, deducts the numbers likely to be killed and reported missing. He is thus able to form some idea of the numbers for which provision should be made by the respective formations. This figure is roughly divided according to the known percentages in the battle area into walking, sitting or lying down cases. The percentages vary in every theatre of war and in every battle in the same theatre of war. Until experience is gained, the approximate percentages may be taken as 30 per cent. walking and 70 per cent. sitting or lying down. By calculating the number of sitting and lying down cases in this way, and by estimating the distance they must be carried by hand before being transferred to some form of mechanical transport, a working idea is obtained of the additional accommodation, extra bearer personnel, stretchers and blankets that will be required. At the transfer station, be it advanced dressing station, walking wounded collecting post or main dressing station, the walking cases usually disappear as a group, since from this point onwards, all casualties as a rule require conveyance of some sort. Of total casualties sent to casualty clearing stations, approximately 50 per cent. require sitting and 50 per cent. lying down accommodation.

If the transport allotted to the Medical Service is considered insufficient to convey the calculated number, additional transport will be required, and either extra motor ambulance convoys or general transport and utility vehicles must be provided. In both circumstances time and warning are necessary if the arrangements are to work smoothly and normal traffic is to be disturbed as little as possible. So far as subordinate formations are concerned, their interest in the estimation of casualties is more or less confined to the preparations for and the carrying out of the collection, early or first-aid treatment and evacuation of the sick and wounded from their area. Not so with the higher formations or headquarters, who are responsible for the further treatment, housing and distribution of casualties. The number of casualty clearing stations allotted, the sites on which they are opened, and the extra personnel and assistance given them will depend on the casualties expected from formations or areas. Like all other military movements, the concentration of medical units requires time and must be conducted with secrecy."

¹ Official History of the War. Medical Services—Casualties and Medical Statistics of the Great War. 1931.

If this statement be considered and added to the problems of rail and river transport and the provision on the L. of C. or at the bases, of general hospital accommodation for sick and wounded, it will be realized how wide is the field of co-operation which is essential for success if casualties are to be removed expeditiously and to receive skilful treatment under suitable conditions at the earliest possible moment. That such co-operation has been lacking in past campaigns is undoubtedly, and we have a classical example of this in the historical record that when the British Expeditionary Force reached France in 1914 there was "no responsible administrative medical officer attached to the Commander-in-Chief's Staff, with whom important administrative questions of the strategical dispositions of medical units could be considered and by whom a link could be formed between the Medical Service in the Field Army and the lines of communication. These were essential functions which belonged to the D.M.S. of the Expeditionary Force. They were of extreme importance in connection with the evacuation of sick and wounded to the hospitals on the lines of communication."¹

Generally speaking, the experiences of the earlier years of the Great War indicated that the efficiency of the Medical Service in any particular theatre of war was in inverse ratio to the distance of that theatre of war from the shores of England. It appears, therefore, that public opinion was a strong factor in bringing about the co-operation which led to the efficiency of the Medical Service in the later years of the War. The public opinion of this country is generally right, and there is no reason why the harmonious co-operation which resulted from its pressure should not be a permanent feature in the solution of medical problems of war.

Casualties may amount to a very large percentage of the forces engaged, and one cannot help feeling that if the problem of their removal was regarded more as a tactical withdrawal of troops under special conditions, greater interest might be stimulated in the minds of combatant officers. They would realize more fully that the problem of collection, evacuation and disposal of casualties is in reality an important branch of the military art.

THE IMPORTANCE OF TRAINING

The Medical Service is essential to the Army ; it is not a thing apart. If it is to function efficiently in war it requires peace-time training to that end. The extent to which it is possible to carry out this training is bounded by financial considerations, but the minimum training at any time should aim at producing a highly trained nucleus of officers for

¹ Official History of the War. Medical Services General History, Vol. II, p. 183.

administrative medical duties and for the command of medical units with, in addition, trained cadres of other ranks for the medical units which are required on the outbreak of war.

If this training and the co-operation of the staff be forthcoming, the prospects of the Medical Service of the Army carrying out its duties with success in any future war can be regarded with equanimity.

DISCUSSION.

MAJOR-GENERAL J. A. HARTIGAN: I am glad the Lecturer stressed the importance of peace-time training for war, and also the fact that the training of the Medical Service at the present moment leaves very much to be desired. Its importance is realized not only by officers of the Medical Service but by combatant commanders and staffs. Field medical units, either complete or in skeleton, are constantly demanded by divisional and brigade commanders, but as a rule, they cannot be produced. Owing to the temporary shortage of officers, and to the establishment of other ranks being cut down to the very bare minimum required for routine duties, it is as a rule impossible to take any part in manoeuvres and exercises. In consequence, medical officers and N.C.O.'s have little chance of acquiring practical knowledge of the tactical handling of medical units in the field, while commanders and staffs of formations have no opportunity of learning the functions and organization of such units. Unless conditions improve, we may find in a future campaign that confusion in the medical arrangements must occur. The collection and disposal of casualties is entirely overlooked in 99 exercises out of 100 which are carried out in the Army to-day.

The science of hygiene has already done wonders for the Army. Knowledge of sanitation and a correct appreciation of its importance stands higher in our Army than in any other. Nevertheless, however advanced our knowledge of hygiene may become, hygiene alone will not prevent the appearance in the field of epidemic diseases. It is very difficult, if not impossible, to ensure perfect hygiene in an Army in the field, at any rate in that part of the Army which is in touch with the enemy. The soldier will hardly be persuaded to take precautionary measures against an invisible enemy when he is fully occupied in taking precautionary measures against a visible enemy. For that reason we are likely to get more assistance from the bacteriological side. Only those of us who served in the South African War realize the debt of gratitude which the Army owes to the great work of Wright and Leishman; and I feel sure that an equally effective vaccine against such diseases as dysentery, cholera and even malaria will be found.

I agree entirely with everything the Lecturer said as to the collection of wounded from tanks. I would suggest that on the first available opportunity a Cavalry Field Ambulance be organized to work with an Armoured Brigade.

But as to the actual disposal of the wounded from tanks. First of all, a tank battle is not likely to last very long. The one anxiety of a wounded man in a tank is that he should not be put outside and "dumped." But no unarmoured vehicle is going to be allowed to take part in a tank battle. These facts seem to indicate that the Medical Service can take no very active part in the battle itself; the only thing they can do is to have the Cavalry Field Ambulance headquarters at the rallying point prepared to open a main dressing station, with its sections ready to go forward at any moment on receipt of a radio message.

The aeroplane, I foresee, will come very much into the picture as regards the disposal of casualties. Great changes have taken place in the Army of late, mainly in the direction of mechanization with a resultant increase of mobility. This mobility is going to increase to a very great extent the difficulties of the Medical Service in the field, and for this reason, namely, that the distance between the mobile medical units of a division and the immobile medical units of the Army is going to be enormously extended.

The Casualty Clearing Stations became very unwieldy in the late War, but one cannot forget the fact that, from the point of view of the wounded man, it is by far the most important medical unit in the field, and that it will be so in every war in which the majority of wounds are caused by high explosive shells. I hope, therefore, that it will never become necessary to reduce it below its present establishment both in personnel and equipment, and I suggest that, instead of attempting to make it mobile with a view to being able to move it ahead of the railway, it be left on or near the railway, which I think is its proper place, and that we look to other means for taking the patients to it. There have been great developments in motor transport in recent years, but such development is not likely to help us in carrying the seriously wounded man. We may perhaps send slightly wounded cases forty or fifty miles over rough roads in a 6-wheel motor ambulance; but experience in France shows that for the severely wounded the shock caused by such a journey gravely reduces their chance of recovery.

It is for this reason I believe that in the aeroplane lies our greatest hopes in dealing with this increased mobility; and I suggest that in future wars the D.D.M.S. of a Corps or of an Expeditionary Force will have at his disposal one or more flights of aeroplanes, not only for work in the back areas but for evacuating the wounded from main dressing stations to casualty clearing stations.

MAJOR-GENERAL P. H. HENDERSON : I think the most important point which the Lecturer made was the vast importance of provision for training, and that we will not get such training until the Training Branch realize more clearly what our problems are, and what the importance of the Medical Services really is.

There are one or two points I would like to make in regard to the evacuation of the wounded. From my experience in the late War I feel that the wounded were often taken unnecessarily from an advanced dressing station to a main dressing station instead of being evacuated direct from the A.D.S. to the casualty clearing station. I have always felt strongly that we ought to keep constantly before us the fact that the essential thing is to get, at the earliest possible moment, a wounded man from the battlefield to a hospital, where he can receive not only adequate treatment but adequate rest after treatment. A wounded man ought to have as few moves as possible whether from stretcher, vehicle or unit during his journey from the battlefield. I think that, with the more rapid means of transport now available, we could in many cases eliminate the main dressing station. We know that one of the chief reasons for the main dressing station is that statistics are taken there so that divisions shall know what men and officers have gone down the line; but I think that that information could equally well be obtained by having simply one or two clerks from one of the field ambulances attached to the casualty clearing station to which the wounded are going, and then have that information sent back to the division concerned.

I need not here say anything further in support of ambulance airplanes, because in my recent lecture before the Royal Society of Medicine I emphasized this point. On several occasions during the late War I felt the need of air

ambulances, but none were ever available. Now unless the Medical Services stress the importance of having a properly organized air ambulance service in peace time, the other branches of the Army will not appreciate the necessity for it, and we will again start a war without this essential, as we did the Great War without motor ambulance cars, with unjustifiable loss of life as the result.

CAPTAIN E. ALTHAM, R.N.: One of the problems alluded to by the Lecturer was that of evacuating wounded from tanks. In the Navy, for many years, we have had a somewhat similar problem—what to do with our wounded in turrets. But, while the turret (and I suggest the same holds good for the tank) is in action, it is important that a wounded man, who has perhaps lost control of himself, should not interfere with the working or distract the attention of the crew. For that reason we include in our turret first aid equipments a hypodermic syringe.

There is one question I would like to ask the Lecturer. Can he tell us how the Medical Services of the Army and of the Air Force will be co-ordinated when those Services are operating together in a future war?

THE LECTURER.

THE LECTURER, in reply, said : I should like to re-assure General Hartigan ; there is no intention to interfere with the essential function of the casualty clearing station. Its essential function is, of course, the provision of hospital accommodation where an immediate operation can be carried out. It is really the first line at which an operation can be carried out under suitable conditions. My idea is centred on the provision of some portion of the casualty clearing station which would be able to meet more mobile conditions. It may mean a greater mobility of the casualty clearing station as a whole, or it may mean the provision of one particular portion of the casualty clearing station which might be sent forward to reduce the length of the journeys for those cases requiring early operation.

Captain Altham asked about co-ordination with the Air Force. As things stand at present regulations govern co-ordination between the Air Force and the Army to this extent : that all casualties from an Air Force in war time where an Air Force is functioning with the Army are dealt with by the Army medical organization, but the Air Force has the responsibility of collecting those casualties and transporting them to the nearest Army medical unit. We do not anticipate any difficulty in a future war in maintaining co-operation with the Air Force. The Air Force requires special accommodation in general hospitals on occasions, and special Air Force Medical Boards are required with officers who have specialised knowledge of those conditions which arise in the course of Air Force work. That is as much as one can say at the present moment on that particular point—that we anticipate no difficulty in fitting in easily with Air Force organization.

THE CHAIRMAN :

There are two points which the Lecturer has brought out which I would like to stress. The first is that sufficient prominence is not given, and never has been given, to medical problems on staff exercises. When I take part in a staff exercise it always seems to me that the staff exercise finishes just when the exercise is getting of real interest to the Medical Services. The reason for that is, of course, that staff exercises in the higher formations rarely extend beyond corps formations and hardly touch the division ; whereas the main medical interest is the evacuation

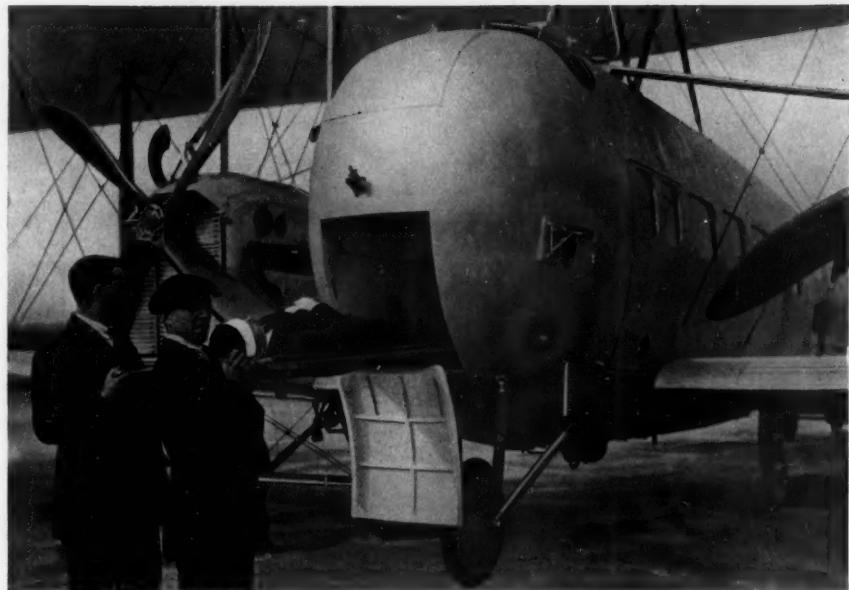
of wounded in the divisional area. I think that can be avoided by Deputy Directors of Medical Services adhering principally to divisional medical problems.

The next point I would like to stress is the enormous effect exerted in the past War by the Medical Services on the question of man-power. Taking that War, the statistical volume of the Medical History of War tells us that, of 8,500,000 casualties which passed through the hands of the Medical Services of the various Expeditionary Forces, there were returned to some form of duty about 82 per cent. of the wounded and 93 per cent. of the sick. Think of what that means in man-power, and the value of the Medical Services, in the way of providing reinforcements for the Army in the field, will be realized not only in the Army but in the nation at large.

The customary votes of thanks to the Lecturer and to the Chairman were carried by acclamation.

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By courtesy of Vickers (Aviation), Ltd.



R.A.F. Official Photograph—Crown Copyright reserved.

MODERN TRANSPORT FOR WOUNDED
A VICKERS VIMY AIR AMBULANCE

R.A.F. Official Photograph—Crown Copyright reserved.



INTERIOR OF A BLACKBURN "IRIS" FLYING BOAT
SHOWING PILOT'S COCKPIT, NAVIGATING AND WIRELESS COMPARTMENTS

the question of design economy, early-type flying-boats were built on a hull which was not much greater than that of an ordinary sailing boat, but it was done, I think, at the expense of stability and air and water resistance, which it is very difficult to overcome.

FLYING BOATS IN EMPIRE DEFENCE

By WING COMMANDER R. M. BAYLEY, D.F.C., R.A.F.

On Wednesday, 18th November, 1931, at 3 p.m.

AIR VICE-MARSHAL R. H. CLARK-HALL, C.M.G., D.S.O., in the Chair.

THE CHAIRMAN introduced the Lecturer and commented on his special experience of flying boats.

LECTURE.

IT is not easy to appreciate the difficulties and potentialities of flying boats without going into some explanation of the fundamentals underlying their design and development. I will, therefore, first state the elementary fact that a flying boat is essentially an aircraft designed to use the sea as an aerodrome, and not, in any sense of the word, a ship with wings. This latter characteristic may come in time, but it is by no means yet in sight. Thus flying boats use the sea or other convenient surface of water as a medium for alighting, taking off, replenishing and resting ; they do not use it as a means of transit.

The buoyancy of a flying boat is secured by the hull, across which the superstructure is saddled ; in fact the hull acts as a combination of the fuselage or body and the under-carriage of a land-plane while it accommodates the whole crew and equipment. Normally, the hull is fitted on the under side with steps to facilitate hydroplaning and a "V" bottom. This "V" varies in severity and depth, but the object of it is to soften the shock of alighting. On the water, a flying boat behaves like any surface craft, except that it always swings into the wind, provided that the wind is stronger than the tide, and it cannot go astern.

The present policy is to develop the flying boat as an aircraft and not as a ship with wings, for although the development of larger types of flying boats is being pursued steadily, it can definitely be stated that the ocean-going flying boat is not at present within sight. Apart from the question of economy, it is desirable to have the smallest type of boat which can satisfactorily fulfil requirements, since this can be used on more restricted waterways such as rivers and lakes ; we do not want to develop several classes of flying boats for differing conditions.

Compared with the land-plane, the development of the flying boat has for various reasons been slow; for one thing we have had other commitments to fulfil first, such as those of Home Defence. Technically, the flying boat presents a more complex problem than the land-plane, while the limits of its size are reached later than those of the land-plane; and, theoretically, it can stand greater overload. As regards operation, flying boats have the merit that they do not require an elaborate organization. There are very few places on our coast line from which they cannot operate, while the land-plane is virtually tied to expensive and prepared strategical routes, and its mobility is determined by the limits of such routes. In the case of the flying boat very little preparation is necessary beyond ensuring storage of petrol, oil and supplies in some suitable bay, creek, river or lake. Moorings are desirable, but they are not essential. In circumstances where only such bare necessities are available, flying boats are probably the only aircraft which could be used for a period of several months at a stretch; in short, this class of aircraft possesses a greater strategical mobility than any other.

Seaworthiness as applied to flying boats is usually considered under two headings: ability to manoeuvre or ride at anchor in a rough sea, and ability to rise from or alight upon a rough open sea without sustaining damage. In the first category, a rough sea might be described as that which may be expected in a reasonably sheltered piece of water in stormy weather. In the second, seaworthiness is a far more difficult problem—a breaking sea five to six feet high is termed a rough sea. The function of a flying boat, however, is to remain in the air and only to use the water as an aerodrome. I think it can reasonably be asserted that, in fair weather, the open sea can be used for resting while a flying boat is on patrol. This certainly is an asset, because there are probably many occasions on which it may not be necessary for a boat to remain in the air for a long period at a time, and when it can with advantage sit down on the water to await events. It can thus be said that a high degree of seaworthiness, that is to say ability to operate under various conditions of sea and weather, greatly increases the strategical mobility and operational value of a flying boat. But seaworthiness is very closely linked with performance in the air, and this we must have; in order to obtain a really high degree of seaworthiness a fairly low landing speed is needed; consequently the boat must possess rather a low take-off speed. For air performance, a good cruising speed and radius of action are essential.

A few remarks concerning our present flying boats may be of interest. The low cruising speed of the "Southampton" is its main disadvantage. A 30-knot head wind reduces its speed by 43 per cent. Consequently,

if a "Southampton" is flying to Gibraltar—a distance of 1,100 sea miles—against such a wind, it will have to travel an additional 860 miles to counteract the effect of this 30-knot resistance. A flying boat with a cruising speed of 100 knots would, under similar conditions, have to travel only 500 miles further. Nevertheless, the "Southampton" has proved a very successful type indeed. In relation to its size it is very seaworthy and very manœuvrable; it is simple, not tiring to fly, and very easy to maintain. Its disadvantages are that it is slow and cramped.

The "Iris" is very seaworthy, and has a good performance in the air; but it suffers from a poor take-off, owing to the exaggerated "V" in the hull.

The "Rangoon" was originally the civil "Calcutta" type; its accommodation is good, but its cruising speed is on the low side.

The bomb load of a flying boat varies between 1,000 and 2,000 lbs. Their other armament consists of three or four machine guns.

Several new types are under trial, but particulars cannot yet be published. One of these new boats flew non-stop from Gibraltar to Plymouth at an average ground speed of 80 knots, or 92 miles an hour, the average air speed being about, or just under, 85 knots. Our present aim is to produce a range, when required, of 1,500 sea miles and a cruising speed of 100 knots, together with high seaworthiness and good accommodation. It is, of course, possible that in aiming at only one type of flying boat capable of carrying out a very large number of duties, we may be evolving a very expensive type. But it has to be borne in mind that the role of a flying boat squadron at home differs from that overseas. It is, in my opinion, more probable that our requirements would be met quite as efficiently and yet more economically by producing two types, one a small boat of medium range, chiefly for home service, and the other a longer range type for overseas.

The duties of a flying boat squadron depend considerably upon its location. Home squadrons will, I think, be employed largely for duties along trade routes converging upon focal points around the British Isles, whereas overseas squadrons will more likely be employed on coast defence, extended reconnaissance and separate air operations. For convoy, escort, anti-submarine patrol, reconnaissance and bombing at moderate ranges, two small boats are better than one large one, while the cost is, incidentally, just about the same. Overseas, however, the question of reinforcing one flying boat squadron by another in time of war is paramount, and the distances are great: for example, England to Gibraltar 1,100 miles, Gibraltar to Malta 984 miles, Singapore to Hong

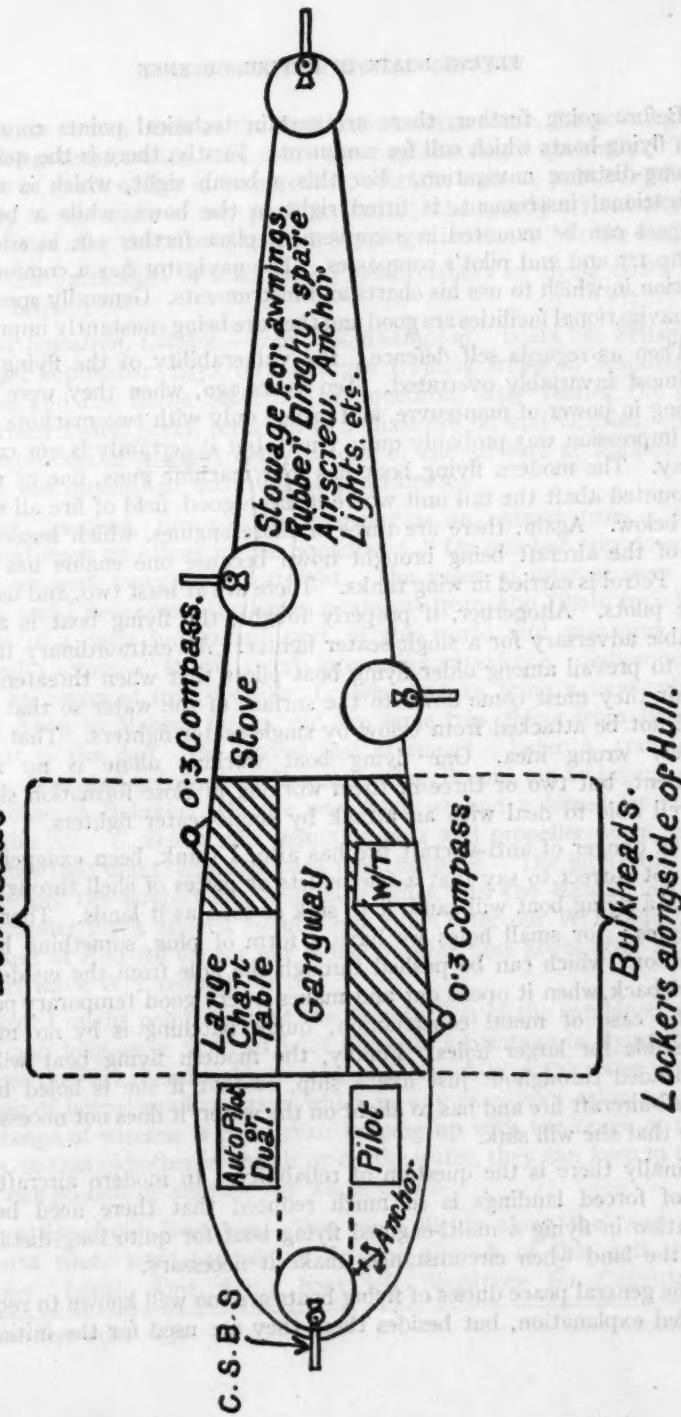
Kong 1,440 miles. Such flights call for increased range of operation, greater ability to operate self-contained and good accommodation.

Flying boats require bases for major repairs just as much as surface vessels ; in fact their efficiency depends on this condition. More than any other type of aircraft, however, they are capable of acting for long periods from an improvised base or an advanced refuelling point. Given petrol, oil and a certain amount of unskilled labour, the rest is comparatively simple. It has often been urged that a surface vessel should be used as a tender for flying boats, but a surface vessel is extremely wasteful and slow. In addition, it must be expensive, while its immobility completely hampers the strategic mobility of the flying boats to which it serves as tender. A tender, like the "Adastral"—formerly a drifter—if required to operate on the present East Indies station, a station which extends from Aden to Singapore, would be of little use. Until a base is established, therefore, flying boats must be more or less self-contained or supply themselves from an advanced base. The requirements of such an advanced base, however, are very simple especially if spares can be obtained quickly, as and when needed, and if there is not any heavy overhaul or dismantling to be done. Accordingly I do not think it an exaggeration to say that bases of this type will soon be dotted all over the Empire, enabling flying boats to proceed practically where and when they will.

The larger types of flying boats will, of course, prove very useful both for communication and transport, and also as tenders to other aircraft. There are stretches of our strategic air routes in the Empire—for example Port Sudan to Aden, Basra to Karachi via the Arabian coast, and Rangoon to Singapore—which involve flights along inhospitable shores where communications are non-existent and water scarce, while certain sections—for instance that from Masqat to Karachi—which involve a flight of as much as 225 miles over the sea. In present circumstances the flying boat is probably the only practicable means of communication. Indeed, as escorts to land-plane squadrons on such flights, I do not think that flying boats can be overrated, and viewed from this standpoint, they become an essential part of our Imperial air-route system.

The flying boat also has the advantage of being an ideal means of quick communication in undeveloped coastal regions. For instance, if the Political Resident in the Persian Gulf desires to visit the Political Agent in Masqat, he will, if he travels by land or sea, be absent from Bushire for nineteen days for a three days' visit. If he goes by flying boat he can reach Masqat the same evening, and the total visit entails an absence of only five days.

*Lockers alongside of Hull.
Bulkheads.*



SKETCH PLAN OF THE HULL OF A MODERN FLYING BOAT

Before going further, there are certain technical points connected with flying boats which call for comment. Firstly, there is the question of long-distance navigation. For this a bomb sight, which is also a navigational instrument, is fitted right in the bows, while a bearing compass can be mounted in a convenient place further aft, in addition to the 1st and 2nd pilot's compasses. The navigator has a comfortable position in which to use his charts and instruments. Generally speaking, the navigational facilities are good and they are being constantly improved.

Then as regards self defence ; the vulnerability of the flying boat is almost invariably overrated. Ten years ago, when they were slow, lacking in power of manœuvre, and armed only with two machine guns, this impression was probably quite true ; but it certainly is not correct to-day. The modern flying boat has four machine guns, one of which is mounted abaft the tail unit where it has a good field of fire all round and below. Again, there are three or more engines, which lessens the risk of the aircraft being brought down because one engine has been hit. Petrol is carried in wing tanks. There are at least two, and usually three pilots. Altogether, if properly fought, the flying boat is a formidable adversary for a single-seater fighter. An extraordinary theory used to prevail among older flying boat pilots that when threatened in the air they must come down to the surface of the water so that they could not be attacked from below by single-seater fighters. That is an entirely wrong idea. One flying boat working alone is no mean opponent, but two or three of them working in close formation should be well able to deal with an attack by single-seater fighters.

The danger of anti-aircraft fire has also, I think, been exaggerated. It is not correct to say that a few bullets or pieces of shell through the hull of a flying boat will cause it to sink as soon as it lands. There are antidotes ; for small holes we have a form of plug, something like a mushroom, which can be pushed through the hole from the inside and pulled back, when it opens out and makes a very good temporary patch. In the case of metal construction, quick patching is by no means impossible for larger holes. Finally, the modern flying boat will be bulkheaded throughout just like a ship, so that if she is holed badly by anti-aircraft fire and has to alight on the water, it does not necessarily mean that she will sink.

Finally there is the question of reliability. In modern aircraft the risk of forced landings is so much reduced that there need be no hesitation in flying a multi-engined flying boat for quite long distances over the land when circumstances make it necessary.

The general peace duties of flying boats are too well known to require detailed explanation, but besides these they are used for the initiation

of new air routes, such as the Southern Arabian route, for policing and patrolling these routes, and for "showing the flag" generally. They can be of great utility in transporting officials, such as political officers, rapidly to the scene of any possible fracas; the speedy arrival of these authorities may contribute towards nipping "incidents" in the bud.

A few particulars of some recent performances by flying boats may be of interest:—

201 Squadron, Calshot.—Four "Southampton" boats left Felixstowe on 23rd September, 1930, on a summer training cruise to Scandinavia, Poland and the Baltic States. The Squadron, after visiting the more important Baltic ports, returned to Felixstowe on 2nd October. With the exception of a slight delay to one of the aircraft at Esbjerg, the cruise was carried out according to programme.

203 Squadron, Basra.—The following is an extract from a letter received from an officer in the Squadron: "On our last trip down the Gulf¹ we were away for a fortnight. The items of interest were that A., B. and I flew across the Oman peninsula from Abu Dhabi to Sohar"—this is a very unpleasant part of the world and measures some 140 miles across—"It was a very interesting experience. Subsequently, after we returned from Gwadar, C., who had to bring a new cylinder block down to Masqat for us, did the same trip, flying from Basra to Masqat in the day. He arrived just at sunset. Later A. transferred to C.'s boat and returned to Basra, leaving B. and me to organize the rest-house at Bahrein. On the way back we had a forced landing at Jez Abu Ali; C. flew a new reduction gear and propeller down, which we fitted that night, and flew back next morning. The interesting part is the way the aircraft can help each other. In the Masqat instance, the cylinder block arrived twenty-four hours after our W/T request for one, and at Abu Ali we got our reduction gear nine hours after sending a short-wave W/T request for it."

Here I might point out that the introduction of the combined short-wave and long-wave W/T set is of immense advantage to flying boats, because they are thereby able to communicate while on the water without the use of heavy auxiliary gear, which in any case very seldom works. The range of wireless is more than keeping up with the range of flying boats, so that, whether in the air or on the water, they can keep in touch with one station or another the whole time.

205 Squadron, Singapore.—Two more flights along the Singapore-Calcutta route were carried out by the aircraft of this unit during October, 1929. One flying boat left Singapore for Calcutta on

¹ In September 1930

3rd September and returned on 18th September; a second left on 11th October and returned on 22nd October. On both flights halts were made at Penang, Mergui, Rangoon and Akyab. The object of these monthly cruises is to gain practical experience of weather conditions from an aviation point of view during the whole of the monsoon period. Their value from this aspect has been well demonstrated, as the conditions experienced during the first cruise to Calcutta in August were quite different from those met with on a flight to Rangoon in June. The worst conditions so far experienced occurred during the return of the flying boat from Calcutta in August, during which the monsoon rain was particularly heavy. The difficulties of flying through this tropical rain are somewhat similar to those of flying in fog, with the added disadvantages of strong wind, bumpy air conditions and the acute discomfort of rain beating into the pilot's face. In spite of these adversities, however, the aircraft adhered to the time-tables of the flights with only minor alterations.

In home waters, of course, there must be a good deal of work with naval forces; convoy, anti-submarine, shadowing and so forth. The versatility of flying boats renders them capable of co-operating in such places as Malta, Gibraltar, Singapore and Hongkong, both with the Navy in narrow seas and with the Army on land; or they may act separately. Further, they can work on inland waters, or overland from rivers, in such districts as the Sudan, Central Africa and Canada.

In war, again, I think that much of their work will be in the narrow seas and along the coasts. For safeguarding shipping on the trade routes, and especially at focal points such as the approaches to the Channel, Gibraltar, around Malta, Alexandria, Calcutta and in the Straits of Malacca, they are likely to prove of particular value by virtue of their speed, offensive power and ability to summon surface or other air forces to the required spot. The location of commerce raiders and their attack by surface craft or submarines is a very difficult task; there is no question that if we had had any aircraft when the "Emden" was at large her end would have come very much more quickly. For operations such as these, and where they lie within its range, the flying boat has every advantage. Its value for convoy and anti-submarine patrols is beyond question.

In coast defence and the defence of ports the principal duty of flying boats will be to guard against surprise. They will have to locate and keep in touch with raiders or an approaching fleet, and if necessary summon other forces to attack. Flying boats will possess great value as dawn and dusk patrols. With an average of twelve hours darkness, a fleet can only move 250 nautical miles or a large convoy 120 miles in

that time ; therefore I suggest that reconnaissance by flying boats will go far towards discounting the threat of the " attack at dawn " ; that is the sudden appearance of a hostile squadron to the complete surprise of the local defences. Reconnaissance by flying boats overnight extending to 200 miles or more should afford reasonable assurance against any form of surprise.

Again, flying boats can watch our own mine-fields and prevent the enemy laying his ; and they can hamper and attack his submarines.

I think it can be generally accepted that the ideal form of defence for a port in war is a combination of heavy guns, medium guns, aircraft, ground forces and seaward defences. But whatever the relative merits of big guns and torpedo-aircraft may be, we certainly cannot afford to have defences all over the Empire which will do more than provide a reasonable deterrent against hostile attack. Nevertheless, it is obvious that, no matter what form the defence of a port may take, the flying boat will play a large part therein. On the outbreak of almost any form of conflict, flying boat squadrons, on account of their versatility will be the busiest of any aerial squadrons. Being sufficiently self-contained and self-supporting they could be sent to act as reinforcements wherever required, pending the arrival of those stores and personnel which must come by sea. It is reasonable to assume that in war Singapore could be reinforced with a flying boat squadron from the United Kingdom in eighteen days, Trincomalee in twelve days, and Singapore, from Iraq or India, in about thirteen days. It is here, I maintain, that the larger type of flying boat is going to prove its value. We are already arriving at the stage where they can fly from the United Kingdom to the East without touching foreign territory. Flying boats can now reach practically any point on our Imperial overseas routes, including Aden and Somaliland, as far East as Singapore and North Borneo, and possibly Hong Kong—that is provided circumstances are really favourable. They can also, without touching foreign territory, reach Haifa, Cyprus, and our various territories in Africa.

Reinforcement, in the air sense, is a very wide term. A squadron on arrival at a base does not merely reinforce the local garrison, but, by reason of its mobility, it augments the air strength over a whole area. That is an attribute peculiar to air forces.

Separate operations, that is to say opportunities for flying boats to work independently, may be many. In any major war there must always exist subsidiary objectives, and it will therefore be the policy of the Air Staff to exploit to the fullest advantage this mobility of aircraft, and to select their objectives, which indeed may not necessarily always remain the same. In fact, they may frequently change, and, as a

campaign proceeds, air forces may at one time attack one kind of objective, whilst at another time far better results might be gained by a change of objective, owing perhaps to the general war situation or to shortened hours of daylight or darkness. In any such change of objective the flying boat will play an important role, since it might sometimes operate for topographical or other reasons in areas where conditions do not allow of a base being provided for land-planes. Such an objective might be an inland sea upon which the enemy is dependent for his line of communications but near which it would be out of the question to establish a land base. In such a case the flying boat might be the only type of aircraft which could be employed.

The value of air power for effective and humane control of undeveloped countries, combined with economy, is now, I think, widely accepted, and a flying boat, suitably armed and backed by secure but inexpensive routes and refuelling points, is ideal for use in such regions as the Red Sea, the Persian Gulf, the coasts of Somaliland and South Eastern Arabia. Our present power to control these regions, short of sending out land expeditions, is limited to the range of a ship's gun. The offending population need only go far enough inland to be quite out of range of the guns, and the beach itself may sometimes be out of range. Flying boats can operate a long way inland and attack centres of trouble which hitherto may have remained immune. This applies particularly to such places as the Musandam Peninsula, which has only quite recently been crossed by a white man. This ability of the flying boat to operate inland made a deep impression on the local sheikhs along the Persian Gulf. Another point often overlooked is the utility of flying boats for evacuating inhabitants of a threatened area.

One other point—belligerent rights ; always a very difficult problem. I will quote a paragraph from a book called "Aircraft and Commerce in War" by Mr. J. M. Spaight, a high civilian official in the Air Ministry and well-known writer on that subject. He says, "The new arm should be allowed to start fair. It should know at least where it stands and what are the rules of the game. The law of maritime war is in a chaotic state. If the air arm inherits the dismal legacy of the naval rules, and if it has to work under the nightmare handicap of a law which is hopelessly archaic and only tolerable because it is interpreted with a looseness that robs it of all real value, a position still more deplorable than that in which sea power operates at present will result. For the interference with neutral commerce will be on a greater scale than in the past ; the occasions for friction and disputes will be multiplied manifold, and yet another argument will be furnished to those who regard all international law as an academic futility. The new arm

should not have to begin its career as commerce-preventer bound by the letter of a law which only a cynical disregard for the spirit of it makes endurable."

The following are merely personal suggestions. A man-of-war can refuel at a neutral port ; can a flying boat do so ? I see no reason why it should not, and the facility would be immensely useful to us. Moreover, I can see no real reason why flying over neutral territory should not be allowed when merely reinforcing. For instance, in 1905, Admiral Rodjestvensky's squadron sailed through neutral waters for the greater part of the passage from home waters to the far East.

Again, it is contended that a flying boat cannot exercise "visit and search" ; but why not ? If flying boats are working in pairs, the operation should not present any very great difficulty. I know perfectly well that there is the difficulty of providing prize crews and the problem of the safe disposal of the captured crews ; but there is a possible solution to both. When we get a larger flying boat it will be able to carry enough men to provide a prize crew. Here I would quote the opinion of a well-known British submarine Captain whom I have frequently heard to assert that eight men is a sufficient strength for a prize crew. If, then, we reckon on carrying a prize crew of eight in a flying boat, the first ship captured could be used for the disposal of any subsequent captured crews. I am quite prepared to admit, of course, that the escorting of such a vessel must effect the mobility of the flying boat ; nevertheless, I contend that it is not correct to maintain that visit and search is impossible, and that a vessel cannot be captured and also, if necessary, destroyed. A flying boat can not only examine a ship but can enforce its will upon it under penalty of destruction by its companion, which is in the air. One flying boat will naturally not risk coming down on to the water alone and being sunk by a single shot.

I may be wrong, but I contend that in future wars an unscrupulous enemy with a powerful air force will not hesitate to use his aircraft for unrestricted warfare against merchant shipping. Should this be done, Great Britain is bound to suffer. I am not for a moment arguing that we should initiate such methods, because we should not ; but I do submit that we must be prepared to act in reprisal if necessary.

I will now summarize very briefly the various attributes of the flying boat. In the first place, it possesses those capabilities which are common to all air forces ; but if it is to be employed to the best advantage in the defence of the Empire, certain special features need to be developed and made use of to the fullest extent :—

- (a) Great rapidity of action with extended tactical and strategical range ;

- (b) Capacity to attack widely different kinds of objectives—on the sea, under the sea and on the land—and to turn, like all other air forces, from one objective to another;
- (c) High offensive power at relatively small commitment and low cost;
- (d) Independence of any elaborate and vulnerable maintenance and organization, whether in peace or war—no aerodrome is required;
- (e) Ability to re-inforce in the highest sense, i.e., to move rapidly from normal location to war destination, however distant, and to start work immediately on arrival;
- (f) Ability to evacuate inhabitants from a threatened area.

The flying boat is undoubtedly the most versatile of all aircraft; it requires the minimum of maintenance; it is invaluable as a vehicle of reconnaissance; and it does not leave much to be desired as a strongly offensive weapon. Outside Great Britain, beyond the zone of activity of the Home Defence Force, it must inevitably become more and more the link between ourselves and the rest of the Empire, by way of the enormous coast line which is ours, and the rivers and internal waters which lie within. To this nation, above all others, the exploitation of the flying boat to the full cannot but produce a great asset. Even in these days of meagre estimates, I suggest that we should make it our charge to use this very facile link in peace, and to develop this formidable weapon in war to the utmost.

DISCUSSION.

WING-COMMANDER T. E. B. HOWE: I fully agree with the Lecturer as regards the value and mobility of flying boats along easily prepared routes. In a scattered Empire such as ours, however, we ought to prepare and develop these routes in peace-time. As regards flying over land, the ease with which flying boats have flown from the Mediterranean to the Persian Gulf at Basra, a distance of over 800 miles, is impressive. Night flying is now being taught to all flying boat pilots at Calshot. All these developments are still further improving the scope and radius of action of flying boats.

AIR VICE-MARSHAL SIR VYELL VYVYAN: I fully agree as regards the importance attached to large flying boats, but the Lecturer has only given us an account of the capabilities of existing boats. In my view this is nothing compared with what they will be later on; even the "Do.X" is just a forerunner of the future. Imperial Airways already have four flying boats in the Mediterranean, where they are running with the utmost regularity and give no trouble at all. They are finer boats than those described by the Lecturer to-day, and even their design is a couple of years old.

I believe that flying boats are going to be so improved and become so important for naval work that if I were an Admiral in command of a light cruiser squadron with five cruisers, I would prefer to have only four ships and to substitute for the fifth two very large flying boats; they would very greatly increase the value of

that squadron. Similarly, instead of a flotilla of twelve destroyers, I would prefer one of ten ships and four large flying boats. The flying boats cost less, their maintenance charges are lower, while the value of such a unit would be much greater than that of a flotilla of twelve destroyers with no flying boats. Large boats like the "Do.X," which are coming, will probably have a range of 2,000 miles, and, as the Lecturer says, they will not worry much about fighting aeroplanes; they will be fully a match for them.

There will be times when you cannot use flying boats and the work will have to be done by cruisers, but I feel sure that from the point of view of economy and efficiency, composite units such as I have described would be of very great advantage to the Navy.

SQUADRON LEADER G. E. GODSAVE: As Chief Navigation Instructor at Calshot—the school for training flying boat pilots—I should like to emphasise one of the points mentioned, namely the question of the attack and defence of merchant shipping, and to say that we hold the view that, in the event of hostilities on a similar scale to the last War, one of the roles of the flying boat will be the defence of our merchant convoys against submarine attack. With this in mind, it is part of the training of the officers who are being taught flying boat work at Calshot to co-operate with the Merchant Navy in practice patrols and signalling exercises.

The officers of the Merchant Navy with whom contact is maintained are only too anxious to foster close liaison, and the captains of ships of every class, from the large trans-Atlantic liners to the little cross-Channel craft, are interested in the tactical exercises and visual signalling exercises we carry out.

Wing-Commander Howe mentioned the subject of night flying. During the last year we carried out a considerable amount of night boat flying at Calshot—Squadron-Leader D. V. Carnegie who is here can give the exact figures—and I think it is worthy of record that No. 201 Flying Boat Squadron maintained a constant patrol in the Eastern Channel at night, from Dover to Calshot, on every favourable night for some six weeks during an exercise this year.

CAPTAIN E. ALTHAM, R.N.: How do flying boats manage about landing at night? Taking off at night is one thing, but can they land safely in the dark?

SQUADRON-LEADER D. V. CARNEGIE: A number of methods of night landing have been tried during the past ten years. First of all, there was invented an apparatus known as the Cooper stick, which trailed in the water on approaching it; it would then operate and automatically pull back the control column. It was not particularly successful. Another method was that of the "bell and bobbit"; this consisted of a weight suspended from the machine which on striking the water rang a bell to warn the pilot that he was a certain distance above the surface. Lights are good when the sea is rough or choppy, but if there is a haze or the water is particularly calm, they shine down into the water and light up the mist. The wing-tip flare has the same disadvantage as the lights. At present we are experimenting with float flares, and with the use of a small motor boat with a searchlight, used solely for sweeping the air.

If a flying boat has to make a forced landing away from a base and without lights of any description, it is unlikely that both engines will go wrong at once so that it can be brought down on to the surface at a small angle. Where the sea was not rough, this has been done many times in perfect safety with one engine.

Night flying is a peculiarly important development of flying boat work, particularly in defence. It has been said that it would take eighteen days to fly to Singapore. If night flying were developed more fully, that time could be cut down by two-thirds.

The only thing with which I did not agree in the Lecturer's remarks was the question of visit and search. It is not at all feasible for a flying boat to be used for that purpose unless the sea is particularly calm, or unless there is no question of the flying boat being able to get off again. The flying boat is an aircraft, not a ship with wings. It can take over the jobs of smaller ships, but to regard it as a ship rather than as a flying machine may result in a considerable amount of harm being done.

ADMIRAL W. H. D. BOYLE : I was very glad that the last speaker made those remarks about visit and search. I was hesitating to say so as a sailor, but I must confess that I did not think that it was a practicable proposition, and I am glad that one of the Lecturer's own Service agrees with me.

The Lecturer read an extract from Mr. Spaight's book to the effect that the new arm must have a fair start and must not have to work under the old archaic laws of the sea. They may be archaic, but they are laws. What else is the new Service to work under ? I cannot understand the object of what I gather to be indiscriminate attack on any ship at sight. I may have misunderstood the Lecturer, but I gathered he implied that if this policy were to be adopted by the other nations, we were to follow their lead. If we were engaged in a "Locarno" war, does he really contemplate bombing ships that may be American and thus bringing the Americans in against us ? In any way neutrals have to be considered, and in any future war they will need to be considered more carefully than in the past. I do not think that dropping bombs on ships that may contain American citizens is a policy that will ever be received with favour by His Majesty's Government.

I quite agree with what the Air Vice-Marshal said about the value of these aircraft. If I commanded a fleet I should much like, in certain circumstances, to have some of them, but I do not think that I should use them for visit and search.

THE LECTURER :

THE LECTURER, in reply, said : As regards the criticism of Squadron-Leader Carnegie, I would refer him to the earlier part of my lecture ; but I quite agree that visit and search can only be made in a sea in which a flying boat can land and get off again. We do not claim to be able to perform this service in any and all conditions, but while we do not postulate a flat calm, it is scarcely fair to assume that we should always be faced with a landing in the Bay of Biscay in a howling gale. There is no question to my mind that there are many occasions on which a flying boat could come down alongside a ship and visit and search it ; I did not say I advocated this being done, I said that it was a possibility.

Admiral Boyle appears to have misunderstood what I said in regard to unrestricted warfare against merchant shipping. What I did say, and what I still most strongly contend, is that in any future war an unscrupulous enemy with powerful air forces will not hesitate to use aircraft for unrestricted warfare against merchant shipping. I further said that though we should never initiate such methods, we must be prepared to use them in reprisal, if necessary.

THE CHAIRMAN :

The Chairman, in bringing the meeting to a close, invited the attention of the audience to the interesting exhibition of flying boat and other aircraft models shown in the Museum, which he recommended them to inspect.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE UTILITY OF THE TANK

I. By COLONEL T. C. MUDIE, D.S.O., *p.s.c.*,
late Royal Tank Corps.

THE opinions put forward in the article bearing the above title, which appeared in the November copy of the JOURNAL, should not be allowed to pass unchallenged.

Beyond expressing surprise that the battles of the Somme, 1916, and Arras, 1917, should be quoted as instances of a policy of "holding the enemy," and that the statement should be made that "the Central Powers were surrounded by water," I do not propose to comment on the first part of the article, which, if I may say so, seems to have little bearing on the "Utility of the Tank."

Some self-restraint is necessary to pass over the assertion that in the last War "the tank was never seriously opposed," which I take to mean that the tank of 1918 was merely opposed by the weapons of 1918 and not by weapons that have still to be invented. But we come to business when we are faced with the submission "that although the tank won us the last War, excessive reliance on it may easily lose us the next, because, with the internal combustion engine as prime mover, it cannot compete with the defensive armament which it will be possible to evolve." Nobody, I suppose, would wish to dispute this assertion, but is not the real question at issue whether the tank will or will not be able to compete with the defensive armour which an army will be able to take into the field without depriving itself of its mobility and offensive power? The idea that the tank's opponent will have nothing to do but sit down, surrounded by a zareba of anti-tank guns, runs like a black streak through the rest of the article.

What if he were suddenly seized with a desire to win the war? He would have to move, and then what becomes of the anti-tank guns' "omnipresent" cover and their comparative freedom from the force of gravity?

To provide anti-tank guns "in numbers at least equal to the number of 303 machine guns" would no doubt be possible, though expensive, but to divert so many guns and men to a purely defensive purpose would entail a very definite sacrifice of mobility and offensive power.

To say that "the tank will ever have to rely for security and surprise on armour, which it must carry wherever it goes, and on speed" is very imperfect as a statement of the conditions existing at present, whatever the future may have in store for us. The tank of to-day, like other arms, depends very largely for security and surprise on the use of ground, suitable formations, smoke screens, and covering fire.

After stating that "the gun can neutralize the mobility of the relatively limited number of tanks by the numbers in which it will be available," the writer goes on to say that "it logically follows that it should not be impossible either to knock out all the tanks possessed by an enemy, or alternatively, to produce a similar moral effect as was experienced by the fleet in 1914-18." If this is a reference to the use of submarines, no better example could be found to demonstrate the fallacy of the argument.

Which had the greater effect on the strategy of the Grand Fleet, the static anti-battleship guns on the German coast, or the mobile submarine? Mobility cannot be neutralized by immobility.

"It will be possible," adds the writer, "to lose an effective tank force in an afternoon." Quite true; Napoleon lost a whole effective army in an afternoon. Nevertheless, it is a fact borne out by history that the more a force relies upon material, and the less upon men, the more liable it is to suffer overwhelming disaster at the hands of an enemy with better material. The lesson to be learned from this is not to scrap all material and go back to stone axes, but to make as certain as is humanly possible that one's own material is the best in existence. Why should the writer say that "it will be common knowledge how many tanks an enemy possesses, just as the number of his warships is known?" This may be true on the first day of a war, but it will very soon cease to be so.

When the author goes on to define a tank as "a vehicle mounting offensive weapons, secure from external offensive and defensive agencies and capable of traversing practically any terrain," he is thinking of an ideal which is certainly unattainable, if by "security" he means absolute and not relative security; but that is certainly no reason for jumping to the conclusion that the tank is useless, until "some new form of prime mover be evolved, so that in the size of a pea you have available 1,000 horse-power." The fact is that tanks have many roles to perform, and different designs are required for different tasks. Not one of these designs is perfect, nor ever will be, but we need not fear that the General Staff will decide to scrap even the present imperfect tank and await the arrival of the 1,000 horse-power pea. It is much more probable that it will be found necessary to provide the anti-tank gun with a

cross-country carriage and enough armour to protect the driver and the gun detachment ; in other words, to make it into a really efficient anti-tank instrument, viz., another tank.

Twice in our era armour has been the dominant factor on the battlefield, and twice it has disappeared. It may well be that, following on its third appearance, history will repeat itself and that tanks may follow the heavily armoured Roman infantry and the knights of the Middle Ages into oblivion, but the discussion of this question is merely academic, so long as there is no sign of any efficient antidote to a well-timed attack by tanks under cover of smoke, and perhaps gas, except a counter-attack by other tanks.

II. By CAPTAIN G. G. R. WILLIAMS,

The Loyal Regiment.

IN the November issue of the JOURNAL there appeared a frankly destructive criticism of the tank. Some of the statements made therein surely appear much open to question, even if some of the author's deductions have not been based on faulty premises.

1. Can the policy prevailing on the Western Front in 1916 and 1917 be properly called a "holding" policy, when the Battle of the Somme, which cost us 60,000 casualties on the first day, continued for four months with 600,000 casualties, while it only inflicted losses amounting to nearly a similar total on the enemy ? Again, during the latter part of 1917, British casualties rose to something like 400,000, while the Germans again suffered huge losses. Is this to be called a real "holding" policy ?

2. Regarding the author's cynical remarks concerning official and unofficial soldiers, may I quote F.S.R. Vol. II, Sec. 3, (4) :—"There must exist unity of direction and control of the armed forces. This is exercised by the Ministers of State who have executive responsibility for the conduct of the war, and who, with the assistance of the heads of the three Services, decide upon the plan of campaign and provide and maintain the necessary personnel and material." The opinion of Sir John Fortescue on this same question is both interesting and relevant. In his introduction to "Six British Soldiers" he writes :—"There has rarely, if ever, been an efficient directorate of war in London, and perhaps there never will be. It is rare to find a soldier who takes sufficient account of civil considerations, or a civil minister who has knowledge and imagination enough rightly to judge of military matters." It will be noted that he holds both sides at fault.

3. As to the policy of holding the enemy on the Western Front and attacking a vital point on the flank, or another point of the circle, surely, in view of the mass of evidence now available, it must be admitted that it was not the conception of the attack on the Dardanelles that was at fault but rather the execution of that conception. The latter is best summed up in the words of Mr. Lloyd George in the House of Commons on 20th December, 1915 :—“ Too late in moving here. Too late in moving there. Too late in coming to this decision. Too late in starting enterprises. Too late in preparing. In this war the footsteps of the Allied Forces have been dogged by the mocking spectre of ‘ Too late.’ ”

4. “ If the ‘ streets ’ of Poelcapelle were paved with tanks,” was that area ever selected by the sponsors of the tank for their employment or was it forced upon them ? I would quote Mr. W. S. Woods’ remarkably impartial book, “ Colossal Blunders of the War,” in which he states that “ the tank’s earliest enemy was British conservatism, which nearly kept it from appearing on the battlefield at all.” Have some of us forgotten that the initial order to a civilian firm for the production of tanks was given not by the War Office but by the First Lord of the Admiralty ?

5. Is it correct to claim that, although the tank won the last War, excessive reliance on it may easily lose the next, because, with the internal combustion engine as the prime mover, it cannot compete with the defensive armament which it will be possible to evolve ? This must be largely a technical question ; but there are certain points which strike the layman. The three factors dealt with are : offensive power meaning armament, security meaning armour and gas-tightness, and finally speed. The submission put forward is that, unless a satisfactory combination of these three factors can be found, the efficiency of the tank will be nullified by the anti-tank gun. Yet even if the anti-tank gun were available in numbers equal to those of the machine gun, and the personnel to man such guns could be found in adequate numbers, it might still be difficult to dispose of the guns, except under ideal conditions, in such a way that they might present an uncrossable front to a tank attack that may come from almost any direction—even supposing, which is improbable, that the attack were made in daylight unsupported by smoke.

Any improvement in metallurgy will, if it lightens the engine, undoubtedly benefit equally the anti-tank gun ; then surely it will to the same extent benefit the armament of the tank. If again the engine can be lightened, which is, after all, a comparatively small part of the weight of the tank, how much more effect will this discovery have on

the armour of the tank? Lighter armour means automatically more speed and, therefore, more security. The production of duralumin and the latest invention of the Metropolitan Vickers' Works at Manchester—the so-called M.V.C.—show that such a discovery is not outside the range of possibility.

Lastly, speed across country depends to a large extent on horse-power; but is it not a fact that the weight of an engine increases in no way relatively to the horse-power developed. If the internal combustion engine is already within a small percentage of overall efficiency, would business firms in this and other countries continue the many costly experiments which result in world records on land, water and in the air? May not the super-charging of engines, a device not embodied in existing tanks, make a vast difference to their speed and capacity without materially increasing the weight of the engine? These developments are exemplified in the engines used in the Schneider Trophy contest. While capable of developing 2,400 h.p., they only weighed $\frac{1}{2}$ lb. per h.p. The possible use of the turbine, at present in its infancy, in place of gears may mean yet further increased efficiency in the prime mover.

Time alone can tell whether the day of the tank is past. Should this be the case now, there appears no alternative except to pit once more the unarmoured infantryman against machine guns and wire. That assuredly must be a counsel of despair.

THE PROBLEM OF PRISONERS IN FUTURE WARFARE

By the late LIEUTENANT T. M. SYNGE, O.B.E., Royal Tank Corps.

This problem of the disposal of prisoners in future warfare is becoming increasingly important with the growth of such typical modern armaments as submarines, tanks and aeroplanes. A measure of international agreement has been achieved in the case of submarines. A solution of the problem, in the case of tanks—which the following article discusses—and of aircraft, has yet to be found.—EDITOR.

THE German view on the use of the submarine in future warfare, as fully expounded in the JOURNAL of August, 1931, should be of interest not only to the Navy but also to all Army officers, especially those in mechanized units, for it would appear that one of the chief problems has an almost exact parallel in land warfare. It is pointed out that submarines are almost useless for "Contraband" and "Blockade" warfare, if they are handicapped by Part IV of the London Naval Treaty. This states that submarines are to conform to the same rules as surface vessels in their operations against merchant ships, i.e., unless the merchant vessel resists search or refuses to stop, the submarine is not allowed to sink her without first placing the ship's crew and papers in a place of safety. It must also be noted that, under this Treaty, a ship's boats, unless near land and under good weather conditions, are not deemed a place of safety.

Now a submarine is a small craft so filled with complicated machinery that even its crew have to live in a very confined space. It is thus evident that unless the ship's boats are considered safe, a submarine has no alternative but to let the merchantman escape. In other words, the defect of the submarine is that it cannot take prisoners. This is the crux of the whole matter.

Now if we look at land warfare we will see that this problem has an almost exact parallel in relation to armoured fighting vehicles and mechanized forces. The crews of all A.F.Vs. have to fight under very difficult conditions—the worst of all being lack of space. Also the vehicles of any mechanized unit are only just capable of containing

¹ "The Submarine in Future Warfare; a German View." By Captain G. P. Thomson, O.B.E., R.N.

the personnel and equipment of that unit. There is no room to spare. It is therefore clear that, if prisoners are captured, there is nowhere to put them. In other words, no prisoners can be taken.

In order to explain in greater detail, let us take three concrete examples :—

(1) Tank attacks during the Great War were almost invariably carried out in close co-operation with the infantry. Our heavy tanks, being able to move only at infantry pace, enabled the infantry to advance on to the objective close in their wake. In a successful attack the tanks were able to break down the wire, overrun and enfilade the enemy trenches, and silence their machine guns ; while the infantry "mopped up" what was left of the enemy, dealt with the dug-outs, and captured and escorted back those who had surrendered. In this type of attack, then, the problem of dealing with prisoners did not arise, as the infantry were on the scene to deal with any of the enemy who surrendered either to themselves or to the tanks.

(2) If we went to war to-morrow, the Royal Tank Corps would go into action fighting medium and light tanks, the speed of which is greatly superior to that of the tanks used in the last War. This increase of speed has necessitated a change in the tactics of infantry co-operating with tanks in the attack. The present day trend of thought is for the tanks to advance upon the objective with all possible speed—for that is their protection—and to silence the enemy machine gun fire before the infantry arrive on the scene. The tanks are to capture the objective, while the infantry's task is to consolidate it. It is thus likely that the tank attack will arrive at least five minutes before the infantry are able to reach the ground won. What is going to happen during that five minutes ? Presuming that this is mobile warfare, the tanks on arriving at their objective, will at once start searching the ground in the endeavour to silence the enemy anti-tank guns, machine guns and light automatics. But now suppose that some of the enemy are faint-hearted and realize that the game is up ; they leave their weapons, stand up, put their hands above their heads and surrender. What are the tanks to do ?

There appear to be the following alternatives :—

- (a) Let the enemy's troops remain where they stand in the hopes that the infantry will arrive to take charge of them.
- (b) Detail a few tanks especially to escort them back.
- (c) Dismount a man from each tank to form an escort.
- (d) Run over their weapons so that they will not be able to offer further opposition.
- (e) Shoot them.

Let us examine each of these in turn :—

(a) As the infantry is not due to arrive for at least five minutes, it is obvious that as soon as the tanks have passed, a determined enemy will get his weapons into action again and proceed to hold up the infantry advance.

This alternative is, therefore, useless.

(b) Unless the main object of the attack is to capture prisoners, this method violates the principle of Economy of Force. Tanks are far too few and valuable to use them as sheep-dogs, and, if deprived in this way of their mobility, they would become an easy target for the enemy anti-tank gunners.

(c) The work of a tank depends upon the team work of its crew. Each man has his own job, and no one can be spared. The idea of dismounting a man in action is, therefore, madness. In any case, their numbers would be insufficient to deal with the enemy.

(d) This will obviously be done as much as possible, as it is the best method of dealing with a determined enemy. But it is obvious that it is not a certain method of depriving him of all his weapons.

(e) There remains this last alternative—to shoot enemy troops where they stand. This, under the circumstances, seems to be the only possible solution.

(3) For our third example let us consider the action of an armoured force acting independently round the flank of the enemy—for example against an important bridge-head.

It has already been shown there is no surplus room in A.F.V.s. or in the transport of any mechanized unit ; therefore no prisoners can be accommodated in them. Now, this armoured force, while moving secretly by night and still many miles from the bridge-head, may be checked temporarily by slight opposition. This is quickly overcome; some of the enemy are killed, but others try to surrender. What is to be done ? The armoured force cannot take prisoners, and at the same time it would be almost suicidal to the success of the raid if they were left behind, free to spread the alarm. If success is to be achieved, there seems to be only one answer.

This is one very simple example from many that can be conjectured. But in every case in which an armoured force is employed the same problem arises. There will, of course, be many occasions on which it will be essential to take a few prisoners—for intelligence purposes, etc.—so that in these cases we shall probably see some type of " Black Maria " attached to the force.

Example No. 1 deals with the past, when this problem did not arise, so that no solution need be sought. Not so with examples 2 and 3. They are the problems of the present and of the future. In most cases, in battle, it will be the junior officer who will have to put the answer into execution. But as this is a question that will have such far-reaching results, it should not be left for him to find the solution. He must be guided by the Higher Command.

The right of a man when defeated to surrender himself to his enemy in the knowledge that his life will be spared has always been unquestioned. It is one of the bulwarks of our civilization. Without it we become mere savages. But this is where modern warfare with armoured forces is leading us. What then is the answer? This cannot be given by ourselves alone but should be a matter for international consideration and decision.

ROBERT BLAKE
GENERAL AND ADMIRAL

By COLONEL R. H. BEADON, C.B.E., *p.s.c.*

IT is safe to assert that of all the eminent commanders who have, during the course of history, led our forces by land or sea, few if any have attracted so little notice as Robert Blake. Indeed, men of far less achievement in the sphere of action have been accorded degrees of recognition which, if the value of work could be gauged by the applause it evokes, would imply that the Admiral of the Commonwealth has no claim to be numbered among the great captains of our race. Yet Blake was undoubtedly a great captain—probably the greatest who ever sailed under the Cross of St. George, with the exception of Nelson.

This neglect on the part of a seafaring nation is curious, and can only be explained by the fact that the sombre though pregnant days of the Protectorate in England do not lend themselves to the popular taste for colour and romance, while over two centuries had to elapse before the strength of political feeling permitted adequate justice to be done to the memory of Cromwell and his lieutenants as architects of Empire. In the case of Blake himself there is the further reason that his private life contained little of interest to the biographer. He was unmarried, and his name is linked with no sentimental episode. Again, while no morose or fanatical Puritan, he never sought the company of the notables of his day, and consequently his recorded sayings or opinions are few. He seems also to have been without personal ambition—an unusual trait at a time when those of the victorious party to which he belonged were afforded ample opportunity for satisfying ambitions, material and otherwise, at the expense of the exiled Royalists.

In these circumstances Blake's career lacks the background required for any intimate record, and it is small wonder that so few writers have adventured themselves in a theme so difficult to handle. Dr. Samuel Johnson, an ardent supporter of the Stuarts, and therefore among the last to entertain kindly feelings towards the Cromwellian régime, wrote a short account of Blake in which he was fain to pay tribute to the Admiral's "intrepidity, contempt of wealth, and love of his country," and some eighty years ago a Mr. Hepworth Dixon published a life which still exists as the principal authority, although certain of his matter

is of dubious authenticity. But beyond these and a comparatively short sketch by Mr. David Hannay in a series of English Worthies, we have to rely for our knowledge on such papers as are available at the Admiralty, and various documents and letters which have been brought to light from time to time.

For the good reason that no contemporary portrait exists, Blake is not to be found in the National Portrait Gallery where he is, perhaps, the most notable omission. There is a likeness of him in his old college at Wadham in Oxford and a "fancy" one in the Naval Museum at Greenwich, but it was little enough on which Pomeroy had to rely when he executed the noble statue which stands in the Cornhill at Bridgwater.

Yet this very sparseness of information is not without some value as evidence of the character of the man, for it indicates an unostentatious and even retiring nature, rare in one who had risen from comparative obscurity to prominence in public office. He seems consistently and designedly to have avoided the limelight, and while such modesty is to the loss of posterity, in the sense that it has left a gap in our knowledge, it nevertheless emphasises him as an ideal public servant. If for no other reason than that we should do well to keep his memory green.

But there are other and fuller reasons why Blake deserves special honour ; nor do these call for the mere re-fighting of his actual battles, for such process, apart from academic interest, would be of little profit to-day when conditions are wholly different and when, therefore, any lessons adduced might well be far fetched. But they relate to the achievements of the Navy of the Commonwealth, which not only marked our first real grasp of the trident of the seas—and to state this is no detraction of the Elizabethan seamen—but which also inaugurated a new method of the application of sea power ; the continuous pressure in all seas and all seasons maintained by blockade. In this last respect Blake's squadrons proved themselves in a manner which up to that time had been considered impracticable.

It was in February, 1649, that Blake, together with Colonels Deane and Popham, were conjointly nominated to command the fleet, with the titles of Generals and Admirals at sea. Since none of them enjoyed any previous naval experience, the appointments might be set down as pieces of political jobbery, and had Blake, for instance, shown the slightest taste for political activities or any inclination to court the powers which existed, it would be hard to resist such imputation. But the Somersetshire squire, in addition to being a man of excellent education, had proved himself as among the most successful, if not among the most prominently discussed, of the Parliamentary officers during the Civil War. He went to the fleet with a record which showed

beyond question that he was a bold and skilful leader, and although resolute in the sense of adherence to the popular cause, moderate in both actions and opinions. It has been hinted that, since he disapproved of the lengths to which his party was proceeding, a facile excuse was seized upon to remove him from the centre of affairs, and colour is lent to this suggestion by the fact that he was averse to the execution of the King; but it is more likely that his moderate views influenced the Government in selecting him for his new post because the fleet was at that time divided in its enthusiasm for the régime which succeeded the death of Charles. But administrative reasons, more than any others, probably caused soldiers to be placed in command of sailors, although at that period the practice was not unknown. The personnel, ships, dockyards and their appurtenances were in a deplorable state. Even in the Admiralty offices corruption was flagrant. Such a condition of affairs called first and foremost for a disciplinarian and an administrator, and in both these spheres Blake was well qualified, for apart from his military service, he had been a successful member of Commissions set up by Parliament for the liquidation and settlement of certain affairs arising out of the aftermath of the Revolution. It was the intention of the Government to create a "New Model" Navy, and a "New Model" Navy was created.

Blake and his collaborators were indefatigable in their task, but it was only by degrees that improvements could be effected, and the process of reform went on continuously during the whole of his career. Even if he had never commanded in a single action, his administrative services to the Navy would have entitled him to a high place in its history, such as Pepys has deservedly attained.

Brief reference may be made to the lesser known phases of his active command. He was in his fifty-first year when, in April, 1649, he hoisted his flag on board the "Triumph," and except for a period when he was sick ashore, he spent the remainder of his life with the fleet. If there was little enough glory in his initial operations—the blockade of the Royalist fleet at Kinsale—while Cromwell was engaged in the invasion of Ireland, those six arduous months served the useful purpose of an apprenticeship for the long and anxious vigils which lay ahead, and they must have given Blake an early foretaste of the hardships and hazards demanded by the service of the sea. It is significant that at their close he declined a Major-General's appointment in the work of the pacification of Ireland. It was fortunate that he made this decision, because, of all the many able officers who served under him afloat, none ever approached him in ability. At no time is nature lavish of great men, and in those perplexing days the young Commonwealth, beset on every side with suspicion and hostility, had need of exceptional talents.

It would, of course, be absurd to claim that Blake suddenly transformed himself into a skilled seaman and navigator. Neither he himself, nor the powers to which he owed his office, supposed that he could, for at the beginning there was placed at his elbow an experienced naval officer on whose judgment he was wont to rely where purely sea matters were concerned. It seems well established, though, that he was an apt pupil, and while always disposed to listen, never at any time shirked the responsibility for any course decided upon. It is difficult to assess how much lore of the sailor pure and simple he ultimately acquired. Mr. Hannay calculates that he probably attained the skill of an Admiralty lawyer who was fond of yachting ; but that, if we are to credit other evidence, would seem an unduly modest estimate. The best part of eight years of active service in all winds and weathers and in divers seas furnish about as intensive a training as it is possible to conceive. Again, since a little knowledge is proverbially dangerous, his victories over Van Tromp and de Ruyter require more explanation than has yet been vouchsafed. It is, perhaps, more just to affirm that Blake, like Cromwell, found his real vocation late in life, and we may leave it at that.

While the blockading fleet was scattered by a storm, Prince Rupert with his privateer raiders escaped from Kinsale and successfully made the Tagus. Thither Blake was commissioned to follow him and his instructions also included the " suppression of pirates and protection of lawful traders." The expedition met with unlooked-for obstacles, for the Portuguese after some vacillation sided with their uninvited guests, and drastic steps were demanded to bring them to reason. Blake seized a convoy emerging from the Tagus for Brazil, and threatened similar action against the incoming treasure fleet. The Portuguese still remained defiant because, with the autumn far advanced, they believed that the maintenance of the blockade, which had already lasted eight months, was impossible. But like others after them, they had to learn the tenacity of the British Navy. Throughout that dreary winter Blake remained in Portuguese waters. His ships were sea worn, his stores depleted, and the crews suffering from their long confinement, but it speaks volumes for the discipline and endurance of the fleet that its grip never relaxed. His threat against the treasure fleet from Brazil was no empty one ; it was intercepted, and the majority of the ships were either captured or sunk. Rupert gained a temporary respite by reaching Malaga, but he could not shake off his opponent who, in spite of Spanish protests, entered the harbour and destroyed all but two vessels of the Royalist fleet.

The harrying of the unfortunate Royalists, whose affairs might well arouse sympathy, involved a good deal more than would appear, since

their fleet was reduced to maintaining itself by depredations on merchant shipping—English trade especially suffering severely. For this reason Blake's next task, after an absence of some twenty months from home waters, was the reduction of the last Royalist bases in the Scillies and Channel Isles. Both these undertakings involved opposed landings, but they were brilliantly executed and furnish interesting examples of combined naval and military operations.¹

These various enterprises gave the fleet and its commander valuable training for the sterner tasks which lay ahead. Blake's reputation rests principally on the great battles he fought during the two years war against the Dutch, but a great deal more than Blake's reputation is concerned. The matter of supremacy in the narrow seas had to be resolved one way or the other, and it was a momentous decision by the Council of State—a decision in which the Admiral himself played a prominent part—that this supremacy must belong to England. It is hardly an exaggeration to state that the doctrine then defined was the first bid for England's subsequent predominance on the water ways of the world. If the decision was momentous it was equally bold. Holland was at that time the greatest naval Power. Her fleets of war and of commerce were known in every port. She was therefore not behindhand in finding occasion for rupture. The course of the Dutch war is well enough known to students of naval history and may therefore be passed over here. Five major actions were contested, and in four of these the English were completely victorious; the concluding battle off the Gable, in June, 1653, being the greatest which up to that time had ever been fought by the Navy. Its results were decisive. Van Tromp affirmed that it was impossible to continue the war, while de Witt was even more emphatic when he told the Assembly of the United Provinces "The English are masters of us and the seas."

The period of the Dutch war is principally of interest as showing the progress made in the strength and organization of the English fleet. In the spring of 1652 a programme was laid down to bring it to a strength of 250 vessels, and although that figure was never attained, later in that year Blake found himself at the head of one hundred ships of the line. On the continued representations of the Admiral, a large number of frigates were subsequently provided, and in 1653 the personnel of the fleet was raised to the not inconsiderable figure of 30,000 men. At the same time a series of reforms in organization and administration were energetically pushed forward, and Blake's memoranda regarding these make instructive reading.

¹ An interesting article on "Blake's Reduction of Jersey in 1651" appears in *The Mariners Mirror* of January, 1932.—EDITOR.

In April, 1653, an event of high political import occurred. Cromwell dissolved the Council of State and seized the supreme power. The Army declared for him, and Deane and Monk with thirty-three naval Captains signified their adherence in a written document; but on this neither the signature of Blake nor that of his brother Benjamin, who was likewise serving with the fleet, appeared. That the Admiral was a believer in constitutional Parliamentary Government is accepted; but he was not prepared to take any part, much less any lead, in steps that might endanger the national unity, and to a deputation from the fleet urging him to oppose the usurpation at Westminster, he made his well-known reply: "it is not the business of a seaman to mind State affairs but to keep foreigners from fooling us." Seldom has the duty of the soldier or the sailor been more succinctly expressed.

There is reason to believe, however, that he contemplated retiring into private life, as did certain other moderate men, and had the Dutch question been finally resolved it seems likely that he would have done so.

He had been wounded in the great battle off Portland in the preceding February. His flagship had been well nigh shot to pieces; she had lost her captain and half her crew were killed; nevertheless, Blake remained at duty until the final success in June. But his health became so poor that he was obliged to spend a period on shore. By October he had sufficiently recovered to take his seat in Parliament, but he confined himself entirely to matters connected with the Navy.

With the signing of the treaty of peace with Holland it looked as if his active career was over. Cromwell, however, had new and ambitious projects. He determined to call to account those Powers which had supported the Royal exiles and which had permitted depredations on English shipping. His plans were kept a profound secret, but in May, 1654, Blake went up to London to receive instructions from the Protector with whom it is recorded he dined privately. The fleet which sailed late in the year consisted of two divisions; Blake with twenty-four ships, flying his flag in the "George," being destined for the Mediterranean, while Penn with thirty-seven ships was to attack the Spanish colonies in the West Indies. War had not then been declared against Spain, so pending such declaration, the Admiral was instructed to deal with certain other English grievances, attention to which had hitherto been prevented by the Dutch War.

While the ensuing operations in the Mediterranean were not in themselves of such tactical importance as had been the actions against the Dutch, they had far-reaching consequences, for it was through their agency that the foundations of English power in southern European waters were laid. At that period England possessed no bases in those

parts, and indeed all major harbours except Naples and Cagliari were closed to her. Cromwell was the first English statesman to appreciate the significance of this fact and to assert English naval power in an ocean highway which was, even then, much utilized by English merchant shipping. The initial step was to demonstrate in a practical manner that such shipping could not be molested with impunity, and this Blake proceeded to do. Compensation was demanded and received from the Duke of Tuscany and Pope Alexander VII. Tunis, feeling secure with its strong fleet and heavily gunned fortress, resisted and received a lesson which caused terror along the whole Mediterranean littoral. As a consequence the Knights of Malta did not hesitate in their compliance ; nor did Tripoli, while Venice opened its roadsteads with professions of esteem.

The cruise ended in April, 1655, having accomplished all its objects. Before he left the Mediterranean, Blake put into Malaga, and it was there that occurred the incident which gave rise to one of Cromwell's most famous sayings. An English seaman who had refused to uncover to a Spanish religious procession had, on the instigation of a priest, been roughly handled by the crowd. He complained to his Admiral, who requested the Spanish governor to send the priest on board. A refusal was returned on the plea that the civil power had no authority to deal with officials of the Church. Blake replied that unless the man was in his flagship within three hours he would burn the city to the ground. The priest duly made his appearance, and after hearing his explanation Blake dismissed him, admitting the provocation ; "but," he added, "I would in the future have you know that Englishmen are only to be tried by Englishmen." Cromwell was very pleased with this incident. He took the letters referring to it with his own hand to the Council, and when he had finished reading them he declared : "By such means I will make the name of Englishman as great as was that of a Roman citizen."

While the fleet was in the Mediterranean, negotiations with Spain were proceeding. With their breakdown in the summer of 1655 war was declared. The foreign situation was then most threatening. Both Portugal and Genoa were definitely hostile, while to the Dutch it appeared that an opportunity for paying off old scores had arrived. Moreover, the English ships were in a sorry condition from their long period of active service without facilities for dockyard repairs. Among the crews there was much sickness, chiefly owing to shortage or poor quality of supplies. The Admiral himself was ill, suffering from dropsy and scurvy, and had any suitable officer been available to replace him, would have vacated his command. But there was no one. Deane was

dead. Penn had been broken for his failure in the West Indies, where his conduct was such as to render his loyalty suspect. Nor was Ascue to be trusted to serve the Commonwealth. Neither Monk nor Lawson was willing to take a naval appointment. Blake was compelled to remain, for he could not refuse the last pulse of his brain to his country. The fleet, as he reported at the time, was by no means fit for sea, but the situation demanded that offensive action should be taken without delay, and in March, 1656, the Admiral sailed. He was never to see England again.

The Government was desirous of attacking Cadiz, but Blake considered this impracticable so, leaving a squadron to blockade that port, he proceeded to Malaga where he duly chastised the Genoese and Sicilian ships who had made common cause with the Spaniards. Efforts to tempt the Spanish fleet to come out were in vain. Meanwhile, in September, Captain Stayner who was in charge off Cadiz fell in with the first division of the silver fleet, en route from Mexico, and captured or destroyed the whole of it.

With the approach of winter it was considered desirable to send the larger ships to England, and Blake with his flag in the "Swiftsure" and twenty frigates remained to carry out the task involved in blockading Cadiz and the southern coast of Spain, closing the strait to hostile craft, and protecting English trade. There was also the prospect of intercepting the Peru treasure fleet on its homeward way. Incidentally visits were paid to the Barbary corsairs and to Tangier in order to relieve a Portuguese garrison which was besieged there by the Moors. Few naval operations in all history excel the skill and hardhihood by which this watch at sea was maintained. Scarcely any ship in the fleet was seaworthy; some had barely enough hands for ordinary duties, but it was a mighty contribution that those few were making to the traditions of the Royal Navy. Yet, it was not until 11th March, 1657, that we find Blake writing to the Government to represent his difficulties, and that after the winter was over:—

"The Captain of the 'Fairfax' tells me in particular that they are forced to call all their company on deck when they go to tack. Therefore I desire that if you intend us to stay out this summer . . . you will forthwith send us a sufficient supply of able seamen."

Within a month of writing this letter and before any material reinforcements could reach him, Blake heard that, on learning that his fleet was off Cadiz, the Peruvian silver fleet of twenty-two ships had run to shelter in one of the Canaries. With twenty-five ships and frigates he sailed on 13th April for Teneriffe. At that time the harbour of Santa

Cruz was one of the strongest fortresses in the world. Horse-shoe in shape, along the inner line of the bay were seven heavily armed forts connected by earth works, while on one extremity facing out to sea was a solid castle which contained the heaviest ordnance then available. The Spanish Governor disposed six of his largest galleons opposite the castle, so as to bring a cross fire to bear on any vessels attempting to enter the harbour, while his remaining sixteen ships were drawn up in a semi-circle under protection of the forts and in a position to rake the entrance of the bay directly. In the roadstead was lying a Dutch vessel, the captain of which had seen service against Blake, and when he espied the English fleet coming down under crowded sail with Blake's flag flying in the "George," he at once sought the Governor and asked permission to leave the harbour. The Spaniard smiled and pointed first to his ships, almost equal in number to those of his enemy, and then to the forts and castle. "For all this I am very sure that Blake will soon be in among you," the Dutchman replied.

Blake was accustomed to take major decisions on his own responsibility, and he scarcely hesitated in making up his mind to attack. He rose from his sick bed to direct the last and greatest of his battles, while his crews assembled for morning prayer. The action began at seven o'clock, when Stayner went in with a squadron of the most powerful ships to engage the six galleons lying near the harbour mouth. Unchecked by their fire or that of the castle he quickly passed the outer defences. Blake followed, covering Stayner's flank with his frigates, so as to allow him to fight the galleons without interruption, and then attacked the main line of defences of ships and forts. By twelve o'clock the latter were silenced, and two hours after the action was over. Two of the Spanish ships were sunk, and every one of the remainder set on fire from which most subsequently became total wrecks. The treasure fleet had ceased to exist, and this feat was accomplished at the cost of two hundred English casualties, including fifty killed, and without the loss of a single ship.

Well might Lord Clarendon—the royalist historian—write :—

"The whole action was so miraculous that all men who knew the place concluded that no sober man would ever undertake it, whilst the Spaniards comforted themselves that they were devils and not men who had destroyed them in such a manner."

The news of Santa Cruz caused intense excitement in England. Cromwell himself wrote the Admiral a letter of congratulation, while the Commons voted £500 for the purchase of a jewelled ring, and the thanks of Parliament were accorded. These marks of the national gratitude were conveyed simultaneously with permission for Blake to return home.

But, before he could receive them, he laid upon himself one further task. At Salee on the North coast of Africa a number of Christian captives of various nationalities were held as slaves by the Moors, and previous steps which had been initiated to free them had been interrupted by the news of the Spanish treasure fleet. Blake, therefore, repaired once more to the Mediterranean, and on this occasion succeeded without fighting in arranging for all the unfortunate prisoners to be released. This last act of justice and mercy shed a lustre round the closing scenes of so noble and selfless a life.

The Admiral was now a dying man. The fester of his unhealed wound, the scurvy from which he had long suffered, the arduous conditions of the many months at sea with their strain on mind and body, all contributed to exhaust his last reserves of strength. Only his tenacious will had kept him at duty, for which he had been for months, even years, physically unfit. On receiving the instructions that he could return, he left Captain Stoaks in charge of twenty frigates off Cadiz and sailed for home in August, 1657. Fortunately some account of this last voyage has been preserved and it is of pathetic interest.

Blake was well aware of his condition, but constantly expressed his anxiety to see once more his native land. He inquired from time to time of those about his bed whether the white cliffs were yet in sight. But the last boon he craved was denied him, for as the coast of Devonshire came into view and the fleet rounded Rame Head, he breathed his last. Two hours later the battered "George" cast anchor in Plymouth Sound.

In death Blake was accorded a pomp and a ceremony which he had always avoided when living. His body was embalmed and brought by sea to Greenwich, to lie in state on that spot which was subsequently consecrated as the noblest hospital for seamen in the world. From Greenwich the remains were taken by barge to Westminster Abbey, where they were interred with a splendour almost unprecedented in that sober age. At the Restoration, Parliament in its zeal sanctioned the exhumation of the bodies of Cromwell, Ireton and Bradshaw from the great church, but did not think it decent to disturb that of the sailor who for so long carried the English flag to glory and victory over its foreign enemies. Charles II had no such scruples. He ordered Blake's ashes to be cast out, and no known grave now holds them. It is of little import for there are monuments more enduring than brass. A great commander and a great administrator, his stature seems to have been enhanced rather than diminished by the lapse of years. No leader, not even Nelson, ever won more entirely the devotion of his officers and men. It has been said that it was an article of faith for his Captains to believe in his genius and fortune. And he has left a name without stain.

... of the armed forces in the world. However in
the various designs there is no such evidence of this, but
the evidence is there to remain a record to those interested in history.

THE DESIGN OF REGIMENTAL BADGES AND BUTTONS

By MAJOR H. G. PARKYN, O.B.E., F.S.A.

(*Late Librarian, R.U.S.I.*).

EVER since badges were first used in the British Army there appears to have been no strict order for the preservation of their original design. Indeed, many such designs have varied in a truly remarkable manner. The various devices used on buttons in particular have altered even more than those on badges, and the number of Regiments that, prior to 1881, had retained the same device for more than thirty years at a time without permitting any variation was very small.

The year 1881 saw the disappearance of the old Regimental numbers ; it was fateful for many of the old devices which had survived until then in more or less the same form. Many were then lost, and little effort appears to have been made by many Regiments to retain on the new buttons any part of the old design.

The following account of some of the many changes and loss of design, which can be traced, is based chiefly on a study of the collection of badges and buttons in the Royal United Service Museum and partly on the author's private collection.

In the year 1767 numbers were ordered to be shown on buttons, and at about the same time it became the custom for officers to wear their swordbelts over the shoulder. Gradually the simple clasp fastening of these belts developed into a more and more ornate plate, which became one of the chief places on which to display the Regimental badge and battle honours.

One of the most popular designs to be adopted on buttons after 1767 was that of a scroll with or without a dot at its opening. This design was very common in the French Army, and was evidently copied by us from them and worn by a number of Regiments. The following retained it until 1881 :—The 19th, now Green Howards, from about 1800-81 ; first worn with the dot, later without :—36th now



2nd¹ Worcestershire, 1800-81; the men's buttons about 1800 were without the dot; it was added soon after:—39th, now 1st Dorsetshire, 1800-81; for a short time the tunic button showed a scroll at the opening:—45th, now 1st Sherwood Foresters, 1780-81; first with a dot, later without:—46th, now 2nd D.C.L.I., 1855-81:—62nd, now 1st Wiltshire, from about 1780-81; the officers' coatee buttons of the 1840 period did not show the design:—67th, now 2nd Hampshire, wore the design on their early buttons and again from 1855-81:—88th, disbanded as the 1st Connaught Rangers in 1922; the design was shown on the officers' buttons between 1855-81; on the men's buttons between 1810-81:—89th, now amalgamated with the 87th as the Royal Irish Fusiliers, 1800-66; after the latter date they adopted the coronet of Princess Victoria at the opening:—97th, now 2nd Royal West Kent, 1824-81:—99th, now 2nd Wiltshire, 1855 until 1877, in the latter year received the title of Duke of Edinburgh's and the ducal coronet was placed on the buttons.

Several Regiments also displayed the scroll badge on their early shoulder belt plates.



Another favourite design on early buttons was that of a roped edge or rim;² but in nearly every case it had disappeared early in the XIXth century. The Royal Welch Fusiliers still retain a circle of dots which may be connected with the original border.

The edge of laurel leaves turned inwards, which is still displayed on the buttons of the Gloucestershire, has also been worn on the buttons by the 2nd Dragoons, 18th Light Dragoons, 4th, 5th, 17th, 21st, 23rd, 34th, 38th, 41st, 54th and 80th Regiments, as well as on the old court dress coatee by the Rifle Brigade.

In 1900 it was decided that the badge of the castle and key, which was given to the Regiments which took part in the defence of Gibraltar in the year 1783 should be of the same design as shown in the great seal of Gibraltar, given to the rock in 1502. Originally the defence had been commemorated only by the honour "Gibraltar," but in 1827 the badge of the castle and key with the inscription "Montis insignia Calpe" was given to the 56th Regiment, now 2nd Essex, and nine years later to the 12th, now Suffolk, 39th, now 1st Dorsetshire, and 58th, now 2nd North-

¹ The words "Battalion" and "Regiment" are omitted from titles throughout this article.

² This was worn by the 4th, 6th, 8th, 14th, 16th, 17th, 18th, 20th, 21st, 22nd, 3rd, 24th, 26th, 31st, 33rd, 34th, 35th, 43rd, 45th, 46th, 52nd, 55th, 57th, 60th, 4th, 65th, 70th, 80th Regiments.

amptonshire. Until 1900 this badge had given great scope to designers, and it has been displayed with two towers and with three, with a single flagstaff and with two, or without any at all. It has been shown as built in the Norman or in the pointed style, while the number of windows and doors has varied continually, perhaps according to the time of year that a design was submitted. The Northamptonshire retained the flagstaff until after 1900 ; but the 39th and 58th do not appear to have had it after 1881 ; the 12th never at all.

As recently as 1908 the badge and inscription was given to the Highland L.I., whose ancestors the 71st Regiment had taken part in the defence. Three Hanoverian Regiments also, which served in the defence, were given the honour "Gibraltar," and their descendants during the late War displayed it on a blue arm band ; all three Regiments were disbanded in 1921.

The castle of Inniskilling with St. George's colour flying is the ancient badge of the two Inniskilling Regiments, which were both formed from the local forces which defended that city so gallantly in 1689. The castle, like that of Gibraltar, has suffered at times from reconstruction, but it has never lost its flagstaff, although the direction in which the flag flies has varied frequently, and would have proved a useful beacon to King James II, who watched the weather-vane on Whitehall to see whether the wind was Protestant or Papist. Once, for a short time, the flag flown was the Union Jack, although the badge commemorates the siege of 1689.

Stars of all shapes and sizes, apart from the crowned star design which became an almost universal badge for the front of the headdress, have figured very largely on the shoulderbelt plates, buttons, skirt ornaments and other appointments.

It has become rather a custom to call all stars of eight points Garter stars, but this is obviously wrong, the distinguishing feature of the Garter star is its centre of a cross and the garter which surrounds it. In spite of this the Dress Regulations of to-day describe the star on the front of the helmets of Dragoon Guards and Dragoon Regiments as being a Garter star, although the centre contains a regimental device.

The only Regiments which have displayed the Garter star in its true form are the Household Cavalry, the Coldstream Guards, the 15th—now the East Yorkshire—who, according to an old set of prints dating from about 1790, wore it on the officers' shoulderbelt plate, although the star shown on their buttons, from about the same date until 1881, bore the regimental number in its centre inside a laurel wreath. The 20th, now the Lancashire Fusiliers, officers wore the badge as a skirt ornament about 1829. The 29th, now the Worcestershire, also wore

the Garter star in its true form on their early shoulderbelt plates, and of recent years, thanks to a good regimental historian, have been able to restore their star to its original shape which in course of years had been considerably modified. The 34th, now 1st Border, and the 44th, now 1st Essex, wore it as a skirt ornament about 1820-40. The Royal Sussex in 1881 adopted it from the badge of the Royal Sussex L.I. Militia. The 41st, now 1st Welch, displayed it on the officers' buttons for a short time about 1830. The 58th, now 2nd Northamptonshire, wore it as a skirt ornament. Finally, it appeared as a chin chain ornament about 1870 for the Rifle Brigade.

In addition to the above, stars of eight points without a crown have been worn on the badges or buttons of the following Regiments :—

17th Light Dragoons, now Lancers, on early buttons.	
13th, now Somerset L.I.	
35th, now 1st Royal Sussex	on early
41st, now 1st Welch	shoulderbelt
63rd, now 1st Manchester	plates and
69th, now 2nd Welch	buttons.
85th, now 2nd K.S.L.I.	
22nd, now Cheshire	on the
24th, now South Wales Borderers	early
36th, now 2nd Worcestershire	shoulderbelt
65th, now 1st York and Lancaster	plate.
53rd, now 1st K.S.L.I. on the buttons between 1855-81.	

A number of Regiments used it as a skirt ornament from about 1820-30 onwards.

The 35th, 53rd and 57th Regiments for a short time, about 1830, displayed a star with wavy points like that of the star of the Order of the Bath on their shoulderbelt plates.

After Waterloo many Regiments adopted for their headdress badge a small star of eight points with the regimental number and badge in its centre, but these soon gave place to a larger design.

Before the battle of Minden, when six British infantry Regiments—the 12th, 20th, 23rd, 25th, 37th and 51st—charged and overthrew the French cavalry, the men decorated their hats with roses. On the anniversary of the battle roses are still worn in the headdress by certain of the Minden Regiments. In the case of the 20th, now Lancashire Fusiliers, the badge of a rose was worn as a skirt ornament by the officers for a number of years prior to 1855, when the coatee was discarded for the tunic. Whether this badge was connected with the action of Minden is impossible to say, but it may well have been, as the Regiment

at that time had no connexion with any county having the rose as its emblem. None of the other Minden Regiments appear to have worn the rose as a badge before 1881, but after that year the 20th, who had then become the Lancashire Fusiliers, had added to their list of badges that of their old Militia Battalion, the Red Rose of Lancaster, but it does not appear to ever have been displayed on any of their appointments. The 51st, now 1st King's Own Yorkshire Light Infantry, display the White Rose of York, but do not seem to have used it before 1881, although the Regiment had been Yorkshire from its very early days. The 37th, now 1st Hampshire, display a Tudor Rose, but it is that of their Militia who inherited the badge from the old Trained Bands of the county of Southampton, to whom a rose badge had been given by Henry V at the time of the battle of Agincourt.

The Royal Crest of England now forms part of the badges of the Household Cavalry, 1st Royal Dragoons, 14/20 Hussars, 15/19 Hussars, King's Own Scottish Borderers, Gloucestershire, Loyals and Royal West Kent. But at one time it was also worn by the 36th, now 2nd Worcestershire, on the oval shoulderbelt plate of about 1790; by the 38th, now 1st South Staffordshire, on the officers' buttons; and at about the same date—according to an old print—on the shoulderbelt plate by officers of the 4th, now King's Own Royal, in 1768. In the case of the 28th, now 1st Gloucestershire, of the 47th, now 1st Loyals, and of the 50th, now 1st Royal West Kent, the lion was uncrowned until after 1881.

A sunk or incised design on the button like that now worn by the Black Watch was once fairly common.

Of recent years the design of wreaths and sprays cannot be said to have improved. Many of those used prior to 1881 were of the most artistic design, but now they can only be described as official issues of laurel.

The 49th, now 1st Royal Berkshire, for many years wore on their buttons a spray of thistle, most probably adopted as a compliment to the Hon. Alexander Maitland, who was Colonel of the Regiment from 1768-1820. This design was later replaced by a spray of half thistle and half rose, and, later still, by a "union" wreath, i.e., one of rose, shamrock and thistle, which was worn until 1881. A "union" wreath was also worn by the 30th, now 1st East Lancashire, the 31st, now 1st East Surrey, on the buttons; and by the 97th, now 2nd Royal West Kent, on the shako plate. The 11th Regiment, now the Devonshire, for a short time before 1881, wore a wreath of oak in the cap badge;



the 97th also had oak in their skirt ornaments. The 38th, now 1st South Staffordshire, had a wreath of half oak and half laurel.

The 73rd, now 2nd Black Watch, wore a spray of half thistle and half rose ; this they retained on the buttons until 1881. The 41st, now 1st Welch, the 46th, now 2nd D.C.L.I., the 98th, now 2nd North Staffordshire, and 106th, now 2nd Durham L.I., wore wreaths of half laurel and half palm on their badges, while the 74th, now 2nd H.L.I., wore a spray of palm on their buttons up till 1881.

About 1850 oak also featured in the shako plate of the 6th, now Royal Warwickshire, while since 1881 the Suffolk have had it in their cap badges, the Essex and the Sherwood Foresters on helmet, cap and buttons, and the Household Cavalry in their helmet badge.



The Leicestershire alone display a continuous wreath, although, at various times, this design has featured on the buttons of the following regiments :— 22nd, now Cheshire ; 26th, now 1st Cameronians (Scottish Rifles) ; 33rd, now 1st Duke of Wellington's, West Riding ; 38th, now 1st South Staffordshire ; 54th, now 2nd Dorsetshire.

The 26th used the design from about 1790 until 1830 and again from 1855 to 1881.

Even the harp, the badge of all Irish Regiments, has varied considerably in its number of strings.

Animals have afforded great scope to badge designers. The lamb of the Queen's, when it first appeared on the colours, was displayed on a green base or field, and was not Pascal. Quite recently it has been given a banner of quite a new shape. The dragon or griffin of the Buffs has not varied so much as might be expected with an animal of its age, although on early badges and buttons of the Regiment it used to be shown with all four feet on the ground. The ancient badge of the 4th King's Own Royal, the Lion of England, when first placed on the Colours, showed the lion crowned and with four feet on the ground, but it has not been shown on badges and buttons in this posture for a great number of years. The badge of St. George and the Dragon, the ancient device of the 5th Northumberland Fusiliers, has shown the saint in many various suits of armour ; he has even appeared dressed as a Roman ; he has been armed with a sword and with a spear ; and has been shown as left-handed.

Another ancient badge of the same Regiment, shared with the Royal Warwickshire, is that of the rose with leaf crowned. This was the badge of the old Holland Regiments, from which both these Regiments trace their origin.

Still another badge of the Royal Warwickshire is the antelope. According to the historian Cannon, this was copied from the design on a captured Moorish standard. But it is far more likely to have been given to the Regiment as a mark of royal favour, the antelope chained being a royal badge of Henry IV.

The white horse as a badge has been shown at a gallop, a walk and as prancing.

The elephant, which commemorates service in India, has been shown with various trappings and in different attitudes. Since 1881 it has always appeared in a pacific posture. The 76th, once the Hindoostan Regiment, now 2nd Duke of Wellington's, was granted the badge in 1807. In this case it was an elephant with howdah and mahout, circumscribed Hindoostan and surmounted by an Imperial crown; the badge commemorated the services of the Regiment in India for over twenty years. It does not appear that this actual design was ever displayed in full on the badges and buttons; the men's buttons of about 1812 showed the elephant with howdah, but the officers' buttons had a plain elephant, later with a howdah cloth only. It was not until 1855 that the elephant appeared on the buttons, with its howdah. The officers' shoulderbelt plate of 1840-55 had the elephant with howdah; but the mahout does not appear to have ever been displayed on badges or buttons.

In the same year, 1807, the badge of an elephant was given to the old 19th Light Dragoons, disbanded in 1821; in 1874, the present 19th Hussars received the badges and honours of the older corps; also to the 74th, now 2nd Highland L.I., and to the 78th, now 2nd Seaforth Highlanders, as a reward for services at the battle of Assaye; the elephant in these cases was unequipped, but both 74th and 78th have at various times shown it wearing a howdah cloth. The 94th Scotch Brigade, disbanded in 1818, also received the badge in 1807 for service in India. In 1874 these honours were given to the 94th Regiment, which had been raised in 1824 and was disbanded as the 2nd Connaught Rangers in 1922.

The tiger, like the elephant, has been shown in many positions. Superscribed "Hindoostan" it was given to the 17th, now Leicestershire in 1825 as a reward for service in India from 1804-23. The tiger of the 17th, as placed on the colours, was originally a remarkable badge, for it was green with gold spots, probably copied from the Seringapatam trophies which were reproduced in the arms of the Marquis Wellesley.

The 67th, now 2nd Hampshire, received the badge in 1827 for service in India from 1805-26; at one time the officers' shoulderbelt plate showed the tiger in a crouching position. The 65th, now 1st York and

Lancaster, received the badge in 1823 for service in India from 1803 to 1822. It was granted to the 14th, now West Yorkshire, in 1839 for service in India, 1807-31, and to the 75th, now 1st Gordon Highlanders, in 1807.

In 1802 the badge of a sphinx was given to the Regiments which took part in the campaign of the previous year. Considerable controversy has occurred over the representation of the sphinx shown on the badge; authorities state the Egyptian sphinx was a male, but that on the badges is represented as a female. This may have occurred because the original badge was probably copied from the sphinx at the Great Pyramids, which is described in a contemporary work¹ as follows:—

"From the Pyramids we proceeded to that monstrous figure the Sphinx. The face of the Sphinx has been most savagely mutilated, and only retains enough of its former features to allow you to guess what it once was. The French having cleaned the sand all around the foundation, have enabled us to ascertain that it has never had a body connected to it, as was generally imagined."

It would thus appear that, if the badge was modelled on this sphinx, a considerable amount of reconstruction would have been needed on the part of the badge designers, since the first work of reference relating to Egypt was Champollion's great work, "Description de l'Egypte," published in 1821.

Most of the early badges showed the sphinx resting on a base inscribed with Egyptian characters, with its tail not raised above the line of its back, which was correct for the Egyptian sphinx. Later it became usual for the tail to be raised, and in fact the men of one distinguished Regiment are said to have refused to wear a cap badge issued with the tail down. These early badges also frequently showed the sphinx without breasts although they appear to have become general soon after.

In the case of the 97th Queen's Germans, disbanded as the 96th in 1818, the badge was shown with the sphinx carrying a flag over its shoulder in memory of the capture by the 97th of the flag of the French Regiment of Invincibles at the battle of Alexandria, 1801.

In 1824 the present 2nd Manchester was raised as the 96th Regiment, and in 1874 was given the honours of the Regiment, which had been

¹ "Journal of the late Campaign in Egypt including description of that country and of Gibraltar, Minorca, Malta, Marmarice and Macri." By Thomas Walsh, Captain in H.M. 93rd Regiment of Foot, 1803.

disbanded in 1818 ; the sphinx then adopted was of the ordinary type and carried no flag.

In 1804 Napoleon decreed from the camp of the "Armée de l'Océan" at Boulogne that the eagle was of itself to constitute the standard of the French Army ; it was to be "An eagle looking to its left, with wings half expanded, and with its talons grasping a thunderbolt, as in the old Roman Standards."

Four British Regiments display as badges eagles which they captured during the Peninsular and Waterloo Campaigns :—

The 87th, now 1st Royal Irish Fusiliers ; eagle taken at Barrosa.

The Royal Dragoons ; }
The Royal Scots Greys ; } eagles taken at Waterloo.

The 44th, now 1st Essex ; eagle taken at Salamanca.

That taken by the 87th, the first to be taken by the British Army, belonged to the 9th French Regiment ; this was one of the Regiments which had been under fire at Jena, Friedland and Eylau, and whose eagles had been decorated by a golden wreath, voted by the City of Paris. This distinction has, however, now been assumed for the badges of the other three Regiments, although the Essex on their mess jacket collar badge show it in the correct form.

The eagles were lodged in the Chapel Royal, now the Royal United Service Museum, but were later removed to the Royal Hospital, Chelsea, whence that captured by the 87th at Barrosa was stolen in broad daylight.

The thunderbolt on which the eagle is perched has become more and more like a cigar, and it would be hard to say in its present form what it was originally intended to represent. In the case of one Regiment it has entirely disappeared.

According to "The War Drama of the Eagles," by E. Fraser, the 28th, now 1st Gloucestershire, captured the eagle of the 28th French Regiment at the combat of the Pass of Maya, but the eagle has never appeared as the badge of the Gloucestershire. The 29th, now 1st Worcestershire, captured two eagle poles, from which the actual eagles had been removed at the battle of Talavera.

The dragon of China, awarded to the Regiments which took part in the war of 1840, has not changed so much as other beasts, except in the case of the Border, whose dragon has lost one of the two tails which it originally had on the buttons and colours in 1850, and on the buttons and badges until 1881.



The 48th, now 1st Northamptonshire, and the 68th, now 1st Durham L.I., had as a button design a twisted bar below the regimental number ; in the case of the 48th the design was retained until 1881 ; the 68th discontinued it on becoming Light Infantry in 1808.

Bugle horn badges have varied considerably in the manner in which their cords have been displayed and in the ornamentation on the horn. The Highland L.I. have, as a rule, displayed a French horn, but on certain badges had an ordinary one.

The Rifle Brigade on the pouchbelt plate of about 1820 wore an angel or figure of Fame, as displayed on the reverse of the Waterloo medal, but this was only worn for a very short time, and was replaced by an eight looped crown, peculiar to Light Cavalry and Rifles, until 1902, when the present crown was adopted.

The 26th, now 1st Cameronians, were raised in 1689 by James Douglas, Earl of Angus, and about the year 1822-25 as a skirt ornament the officers of the Regiment wore a silver heart, one of the charges of the Douglas blazon.



Scalloped borders to buttons like those now worn by several cavalry Regiments and by the Oxfordshire and Buckinghamshire L.I., Royal Ulster Rifles, and Royal Irish Fusiliers, were, previous to 1881, worn by the following Regiments :—17th Lancers ; 24th, now South Wales Borderers ; 26th, now 1st Cameronians (Scottish Rifles) ; 51st, now 1st

King's Own Yorkshire L.I. ; the 88th, disbanded as the 1st Connaught Rangers in 1922 ; and the 98th, now 2nd North Staffordshire. In the case of the Oxfordshire and Buckinghamshire L.I. the design was adopted in 1881, and had not previously been used by the Regiment.

The officers' forage cap badge of the Royal Scots in 1840 showed St Andrew holding fishes in his hand ; this is the only occasion on which such creatures have appeared in British Regular Army badges.

The Royal Army Chaplains Corps until quite recently enjoyed the distinction of having for their service dress buttons one of the oldest designs in the Army. This was a frosted button with a burnished laurel round the edge, originally worn by the Staff ¹ and by certain officers of the General Staff in gilt metal until 1900 ; it was worn by the Royal Army Chaplains Corps in black metal until last year.

¹ A fine example exists in the R.U.S. Museum on a general officer's coat of about 1730.

The abolition of the waistbelt plate, on the introduction of the sash round the waist, caused the disappearance of many of the old Militia badges, adopted by Regular Regiments in 1881. Some of these badges were of considerable antiquity. Among them may be mentioned that of the Norfolk Militia which showed the arms of the City of Norwich, said to represent the castle built by Offa, the first King of East Anglia; at the base of the castle was the badge of a lion, given to the city by Henry IV.

The Leicestershire on their waistbelt plate wore an Irish harp below the tiger; the harp commemorated the services of the Leicester Militia in Ireland during the troubles of 1798.

The South Staffordshire displayed on their badge the Round Tower of Windsor Castle, given as a badge to the King's Own Stafford Militia by King George III in recognition of the services of the Regiment at Windsor during the French wars.

The old East Middlesex Militia, which according to Colonel R. Hay's book, "The Constitutional Force," trace their descent from the armed forces of the Saxon kingdom of Alfred's time, showed as their badge the arms of the county of Middlesex, i.e., three Saxon knives on a shield surmounted by a Saxon crown.



GERMANY OF TO-DAY

By MAJOR B. T. REYNOLDS, M.C., R.A.

On Wednesday, 16th December, 1931, at 3 p.m.

SIR ANDREW MCFADYEAN in the Chair.

THE CHAIRMAN in introducing the Lecturer remarked that there could be few Englishmen better qualified to talk on this subject. Major Reynolds, he said, was for seven years with the Army of Occupation, part of the time as liaison officer with the French when they entered the Ruhr. Subsequently, from 1928 to 1930, he was in Frankfurt in a business capacity.

LECTURE.

In accepting the invitation, some six months in advance, to deliver this lecture, I expressed a hope that nothing might happen to make the Germany of December utterly unlike the Germany of July.¹ So far nothing of the kind has occurred, although the Chancellor of the Reich, Dr. Brüning—so it seems to me—is still sitting on the safety valve with the pressure gauge registering an ever-increasing head of steam. A fresh set of emergency decrees, the fourth of a series, came out only last week, by which, among other things, all wages were cut a further 10 to 15 per cent., while rates of interest were reduced, and a price commissioner was appointed with full powers. These regulations are the most drastic in force to-day outside Soviet Russia. Something must happen soon; indeed I think there is not much chance of our getting forward to better conditions in the world until the German situation has been cleared up.

I now propose first to review the various factors in the situation, as it exists, so as to provide a background for the short summary of economic, political and military aspects of the present position which will follow.

THE FACTORS

i. The German Character.—One of the most salient characteristics of the German is the extreme earnestness with which he does everything, be it business or pleasure. Humour he has of a kind, but in general he finds it difficult to laugh at himself. This tendency diminishes somewhat as one proceeds from North to South, until finally, in Austria,

¹ This Lecture was delivered before Dr. Brüning's recent declaration as to Germany's inability to pay any further reparations.—EDITOR.

there is the traditional joke of the Viennese that "the situation is desperate, but not to be taken seriously." Though this seems to be the only possible attitude for a post-war Austrian to adopt, the majority of Germans regard such levity askance; indeed I have actually met a number who have objected to the idea of any form of union with Austria on the grounds that 8,000,000 such feckless folk could only be a liability to the Reich.

Another marked German characteristic is submission to constituted authority, with which goes, of course, a lack of parliamentary sense. General Mordacq, who commanded a French corps of occupation on the Rhine for a number of years, wrote a book called "*Cinq ans de commandement sur le Rhin, ou la mentalité allemande.*" Incidentally this book gives an exceptionally good picture of "*la mentalité française,*" which was probably not what was intended; but the author is constantly laying stress on the fact that the way to deal with Germans is to command; and in this respect he is, to a great extent, right. The course of the German revolution always seems to me to bear out his view. The war and the blockade tried the German people to a greater extent than any of the other major belligerents, with the exception of Russia, yet, when the break came, it was possible to carry out a complete change in the constitution of the country and return to peace conditions with surprisingly little trouble, judged by precedents in other countries.

To my mind there is absolutely nothing decadent about the German people; they strike me as being the very reverse. Their capacity for work and pleasure is enormous, and the average German can work all day and play all night with apparent impunity in a way that can only excite admiration. However, it may be that this sort of life results in their appearing to suffer from nerves to a greater extent than most other people. Nerves are a very common complaint with all classes of the German community. I have witnessed a factory manager literally screaming with rage at an employee, and I have seen burly men burst into tears when treated in this way.

In spite of a somewhat harsh exterior Germans are a curiously sensitive and imaginative folk. They like their sentiment laid on with a trowel, though much of the new art, which has assumed such strange forms in music, architecture and literature, is really a reaction against sentiment. But this has been much modified since the early post-war years.

The German mind is encyclopædic. If he is studying a subject, the German likes to get to the bottom of it, and then go a bit deeper still. This is obviously a point that lends itself to humorous treatment and is the subject of many stories at his expense. The very weight of his

erudition seems to make it difficult for him to take a broad view, and is probably the chief reason why Germany has thrown up so few statesmen of the calibre of Bismark, although professional men and specialists of all kinds—really first class men in their own line—are produced in plenty. I suppose Ludendorff to be one of the ablest soldiers produced during the late War, but his subsequent excursions into statecraft and politics have scarcely enhanced his reputation.

The German lacks finesse of all kinds and, indeed, is rather inclined to despise it. Even when he has a perfectly good case he is inclined to spoil it by clumsy treatment. Herein lies one of the dangers of the present situation. If it be asked "Is the German to be trusted?" my answer is "as much as most people." So much for the man.

If I have painted the picture of his character at all correctly, it is obvious what his reactions to the Treaty of Versailles must be. To him the whole edifice is built up on the foundation of the sole responsibility of Germany for the recent war. What he considers to be the historical inaccuracy and the flagrant injustice of this premise worries him at least as much as the inconvenient edifice that has been reared upon it.

2. *The Structure of Post War Society.*—Before the War the structure of German society was far more rigid than that existing in this country. Everyone was more or less neatly pigeonholed from the cradle to the grave. The sons of the aristocracy were destined for the army and diplomatic service, or to supervise the ancestral estates. I do not mention the navy because, although everything possible was being done to popularize the sea service, it had not yet acquired quite the same prestige as the army. A similar rigidity applied throughout society. If the father was a clothing manufacturer or a doctor or a post office official the chances were that the son would be the same.

Germany possesses a vast army of pensionable officials, for unlike the practice of this country all local government is carried on by government officials. When the revolution broke out the officials remained at their posts, a circumstance which vastly facilitated the task of those taking over the reins of power. In the case of the French and Russian revolutions the moderate reformers came to the front, in the first instance, only to be swept away by the extremists. That this did not occur in Germany was largely due to the bureaucracy, the police and army, which all remained loyal to the newly constituted government and enabled it to suppress various attempts to seize power, first by the extremists of the Left and later by those of the Right.

The German revolution modified the appearance of German society for those at the top, but even in their case perhaps less than might

have been anticipated. The reduction of the army and navy after the War eliminated those careers for all except a few ; but no wholesale confiscation took place, and even former reigning families continued in many cases to reside on their estates. Except for the mental ferment of new ideas, produced in the war generation, it is fairly safe to say that the revolution itself did not throw the bulk of middle class society out of gear. It was otherwise with the inflation, a calamity which practically pauperized all those living on fixed incomes. The landed aristocracy contrived in large measure to survive the storm—land did not lose its value, and mortgages could be paid off for the price of a few eggs—but the bulk of the middle classes were very hard hit. There has been some revalorization of former government loans, but only up to a small percentage of their face value. Members of the professional or business classes, who were previously living on their own or inherited savings and too old to work found themselves practically penniless, and they are now eking out a bare existence. Those who are younger and still able to work, are living on what they can earn and, in most cases, find it a great strain to pay for the university education without which most of the professions are closed to their children. The universities are full of students struggling to make both ends meet. It is not surprising, therefore, to find a number of them holding very advanced political views.

Such conditions would have occasioned a vast upheaval in almost any country ; but in Germany, where, as I have stated, the structure of society was very rigid, the effects have been revolutionary. Some figures may give an idea of the present position : of the 65,000,000 odd inhabitants of the Reich, it is estimated that 90 per cent. earn less than the equivalent of £10 a month ; only 2,500,000 possess fortunes of over £250 ; and 79,000 alone can claim fortunes of £5,000 or more.

Most of the Germans I know live very simply ; but I think they get more for their money than we do in this country. Education is particularly cheap. As far as primary education is concerned all children are obliged by law to attend the government schools, which are virtually free. Secondary education is also obtained at government schools and costs only a trifle more. Music and the theatre are excellent and cheap. Almost every self-respecting town possesses a municipal theatre and opera house with their own repertory companies ; these are paid for out of the rates, since they are seldom self-supporting. In the past the deficit was often met from the surplus on some other municipal service, such as the tramways, but I fear these institutions are going to have some difficulty in weathering the storm this winter.

There has been a very considerable fall in the German birth-rate. Statisticians calculate that the population will be stationary at a date

not far distant and will then commence to decline. But if the German population is not increasing so fast, it is, at any rate, fitter than it was. There has been a really remarkable movement towards the cult of physical training, games and the like, which has already brought about a considerable modification in the appearance of the people, particularly the younger generation. The Germans are a massively built race, but the comfortable spread generally associated with them in the past is no longer so much in evidence.

Until last December, wages in Germany, although higher than before the War, averaged somewhere about 20 per cent. less than here ; but the workpeople all look well turned out, a fact, I think, largely due to the German working-class woman, who is generally an excellent manager. Wages are now a good deal lower and unemployment has increased ; the latest figures I have seen give over 5,000,000 out of work for the Reich. Social services are not less in scope in Germany than in this country, though actual money payments are less. They are all contributory, and deductions are made by firms weekly over the pay table for unemployment insurance, old age pension, sickness insurance as well as some 10 per cent. for income tax.

Rationalization has gone a long way in Germany. The economic blizzard has laid low a very large number of smaller concerns, and in some cases the State has had to intervene to save even the largest, as for instance the Darmstädter Bank last summer. Existing circumstances have produced a host of State decrees affecting every avenue of life and branch of business activity. Thus, one might say that circumstances are forcing the development of Germany in a socialist direction, which is, I think, a fair summary of the present trend of affairs. Nobody in Germany seems to possess much money, but Germans seem to get a surprising lot in the way of services for what they have, and the State is obliged to take an ever-increasing interest in every branch of activity.

3. *Federalism, increase of centralization and national feeling.*—For centuries Prussia has been a strongly centralized state. But, owing to the circumstances attending the development of a united Reich, the federal idea, inherited from the Holy Roman Empire, has survived longer in Germany than in any other European country. The revolution of 1918 dethroned the reigning houses of the various German states that had survived the forging of a united Germany by Bismarck, but the federal structure was preserved in the Constitution of Weimar, and the various states retain a modified measure of local autonomy. But from both the administrative and the financial point of view, this has proved wasteful, and the whole tendency has since been towards increased centralization. The development of rationalization and large

scale industry has also furthered the process, with the result that Berlin has immensely increased in importance and at the expense of the various provincial capitals.

Consequently, though the German still thinks of himself in the first instance as a Prussian, Bavarian or whatever he may be, the idea of national unity has recently made great strides. The old feeling probably dies hardest in Bavaria, where it is kept alive by peculiar forms of dress, music, diet and an almost incomprehensible dialect; still more, of course, by the fact that the country is predominantly Roman Catholic. The War and the experiences since suffered by Germany have gone a long way towards welding the people together. After the War the French held the view that it was definitely feasible to split up Germany, and they tried to detach the Rhineland from the Reich. Although not suggesting that this would have been sound policy, I am inclined to think that in 1919 they might even have succeeded; but in 1923, when they fomented a separatist movement concurrently with the Ruhr occupation, it was too late. Quite apart from the way the whole business was bungled, the cohesive process had advanced a long way in that short time. The Ruhr occupation finally closed the era of German disunion, so that to-day we have to deal with a Germany strongly imbued with the national idea and anxious to incorporate or re-incorporate in the Reich any communities of German stock that are outside its borders.

This factor lies at the bottom of the scheme for a customs union with Austria, which, I believe, would have developed later into a political union. A permanent prohibition of this project seems to me to be extremely dangerous, since it is tantamount to damming up one of the strongest forces existing in the world to-day, viz., the idea of nationalism. All history is there to prove that an attempt to do so will not succeed indefinitely.

I think the Germans have entirely written off Alsace-Lorraine. But an area that will very probably be re-incorporated in the Reich before many years is the Saar basin, which is at present governed by an International Commission whose members, appointed by the League of Nations, are answerable to that body. The coal mines of the Saar valley were handed over to France by the Treaty of Versailles as compensation for the destruction of the French mines in the Departments of the Nord and Pas de Calais. The Treaty laid down that there will be a plébiscite in the Saar in 1935 to determine whether the inhabitants wish to return to Germany, become French or maintain their independent League of Nations status. If the inhabitants vote for a return to Germany that country has the right to buy back the mines from France. I believe

there is no doubt that the inhabitants will wish to return to Germany when the time comes.

I do not know Eastern Germany personally, but have always met the opinion that the award of the League as regards Upper Silesia was unjust. There is also a deep sense of irritation about the Polish Corridor. As regards the latter, I have no doubt the Poles hold their own point of view, but from that of the Germans it is an intolerable situation that East Prussia should be cut off from the rest of the Reich. Quite apart from the question of the German minorities living under Polish rule, there exists a strong feeling in Germany that some modification of the Eastern frontiers must come.

I have heard a certain amount of talk about the colonial question. The Germans resent the fact that the reasons given in the Peace Treaty for the confiscation of their colonies was that they were incapable of administering them. How well or badly this was done I cannot tell from personal experience ; but it always strikes me as being a somewhat artificial agitation. There are so many more pressing problems on hand that the Germans can only take rather an academic interest in the matter of colonial mandates.

I have always found the German very reasonable in his attitude towards foreigners. I know one Englishman who has been foreman in a German factory for a number of years, and who has never had any trouble, though he could not speak a word of German when he first took on the job. I have worked with Germans as a manager of a German company, and never encountered any difficulty on the score of my nationality. I came across a good deal of openly expressed dislike of the French, but in ordinary times never heard of a Frenchman being molested or insulted. In many ways the Germans admire the Americans, and there has been a considerable vogue for American ideas since the War ; at one time the biography of Henry Ford must have been one of the best-sellers in Germany. But this cult has rather died down lately. Their attitude towards ourselves as a nation I have always found friendly, although I think they are constitutionally incapable of understanding us. We are by nature opportunists, and must in consequence remain a puzzle to them ; they can never be quite certain whether we are diabolically clever or merely incomprehensibly lucky. Much of the German dislike of us in the past undoubtedly sprang from the natural envy of the hard-working man who sees the success that eludes his own grasp snatched by a rival whom he regards as a dilettante.

They feel a hearty contempt for the Poles and they dislike the Czecho-Slovaks, whom they accuse of dumping the products of sweated labour on the German market. Commercially, they have had consider-

able dealings with Russia on long term credit with a government guarantee. They were practically forced to undertake the business at the time owing to the urgent necessity of creating a surplus of exports. But they are now anxious about their money, and are chary of allowing these accounts to increase. There are a number of German technicians at work in Russia ; their contracts are attractive financially, but I have not met anyone who was very enthusiastic about conditions there.

In spite of prevalent nationalism there is a good deal of support in Germany for the idea of European federation in some form or another. Here they would appear to be at one with M. Briand ; but the difference between French and German ideas on the subject lies in the fact that the French would apparently base their scheme on the *status quo* as defined by the Treaty of Versailles, whereas the Germans are quite certain that, as far as they are concerned, modifications in the *status quo* are required before Europe can be made a fit place to live in.¹ I think this fundamental difference of opinion underlies the fact that many of the most internationally minded Germans are now actually in favour of their country resigning its membership of the League of Nations. It must be admitted that their experiences of the League have scarcely been calculated to convince them of its impartiality. The Upper Silesian award, the difficulties about German admission to membership of the League, and the recent treatment of the customs union question rather tend to stamp the League in German eyes as a watchdog of the *status quo*.

4. *Politics and the Associations.*—Politics are a factor which it is almost impossible to get away from in Germany to-day. Before the War, they were of little importance; the executive of government was appointed by the Emperor, and social democracy was considered dangerous. The revolution brought home to everybody the idea of politics and the connexion between politics and government. Under the present German Constitution elections for the Reichstag take place every four years ; the last were held in October, 1930. There are a large number of parties all representing different interests, ranging from the Nationalists to the Communists. The system of voting is by proportional representation ; 60,000 votes, I believe, are required to procure a seat in the Reichstag, and the necessary votes can come from all over the Reich. This system naturally tends towards a multitude of small parties. In practice, therefore, the government depends on a coalition of parties for a majority in the Reichstag, and if it be defeated, the process of coalition-making commences afresh. This system has the advantage that elections are

¹ See Mussolini's views on this subject in the JOURNAL of November, 1931, p. 885.—EDITOR.

not necessary every time the government falls. The present coalition, on which Dr. Brüning depends, is based on the parties of the Middle, which might be said to represent interests ranging from industrialists on the Right to moderate labour on the Left, and includes the powerful Roman Catholic party, the *Zentrum*, on which the whole coalition pivots. The opposition to his government comes principally from the Nationalists and the National Socialists—the latter being Hitler's party—on the Right, and the Communists on the left. Both National Socialists and Communists preach violence—the one Fascism, the other Bolshevism; both parties won a considerable number of votes at the last Reichstag elections. Clashes between National Socialists and Communists occur almost every week-end and lives are frequently lost. The German has always had a passion for organizing himself into associations or *Vereine* of all kinds, and the tradition appears to be well maintained at the present moment. Many of these are perfectly peaceful, but the more politically-minded take the road for the country with the rest in the general exodus from the towns into the country at the week-ends. Motoring down a country lane on Sundays, it is quite possible to meet, first a band of long-haired youths and short-haired maidens striding along to the strains of a much beribboned lute, and then to come round the corner and run into a bunch of Communists or National Socialists wearing some kind of uniform and obviously taking what they are doing very seriously.

I will now attempt to enumerate very briefly the more important of the existing associations, starting from the political Right. First there comes the *Stahlhelm*. This started originally as a sort of Old Comrades Association, but the tendency has been for it to develop towards the Right. At various recent parades this Association has mustered as many as 100,000 strong. It is difficult to form any idea of the strength of the organization. Younger men who did not serve during the War are now admitted to membership. Hindenburg is its titular head. There are also a host of smaller associations which probably overlap with the *Stahlhelm* such as those representing the various regiments of the old army, the various officers' associations, and perhaps one might include the *Technische Not hilfe*, the object of which, as its name implies, is to provide organized parties of men possessing the necessary training to carry on various essential services in case of emergency.

The National Socialists or *Nazis*—*Nazi* is a Bavarian slang word meaning "fellow"—the followers of Hitler, are rather different from the *Stahlhelm*. They are much more obviously political; indeed, their avowed object is to seize political power in Germany. With this object in view they have put up candidates at recent elections and, since the

last Reichstag election, have become the second strongest party. They are obviously modelled on the Italian Fascists, and I think National Socialism is a very fair description of their political creed. They are violently nationalist in that they believe in the divine mission of the German race and wish to purify Germany of foreign elements, particularly of the Jews. They are for Treaty revision, and naturally for the termination of reparations. In internal politics they stand for wholesale nationalization of banks, finance and big business. It is a little difficult to define the Nazi programme, since it varies very much according to the class of the community which is being addressed. There has been some disturbance caused by alleged or real Nazi views on confiscation of private property ; but it must be remembered that much has probably been said in their name which would be forgotten if they came into power. Hitler, however, must not be dismissed as a windy demagogue ; he has a great following in the country, particularly amongst the younger generation, and it is highly probable that at the Prussian Landtag elections of 1932 the Nazis will come out at the top of the poll.

This party is backed by some sort of semi-military organization ; the Nazi " storm detachments " are rumoured to have a certain amount of military training, though how much it is difficult to say. I have often seen parties of them on the march and have attended one of their monster demonstrations. Those I have seen have been well turned out on the whole, and struck me as belonging mostly to the middle-class youth. I have not noticed many working-class lads amongst them. From the social point of view the Stahlhelm rather look down on the Nazis who parade a somewhat ostentatious simplicity—in keeping with their title of National Socialists.

Somewhere about the middle of the political arc we have the *Reichsbanner*, a large organization whose members are pledged to defend the Republic. They are not very vociferous, and seem to suffer from the difficulty inherent in all associations of moderate-minded people at a time like the present. Conditions are so unpleasant to-day that the defence of the *status quo* makes little popular appeal. However, I think it would be wrong to conclude that there is not a majority of German opinion in favour of the republican form of government. Another moderate influence, both in and outside politics, is provided by the Roman Catholic element. The Catholics of Germany are numerous and well disciplined. In politics they are represented by the *Zentrum*, to which the present Chancellor Brüning belongs. Their moderating influence is exerted chiefly by the ban of the Church on membership of the various associations by its members. It would be necessary for the Papal ban on National Socialism to be lifted before Dr. Brüning could

co-operate in a government which included the Nazis, though, in certain circumstances, I dare say this might not be impossible.

The home of Social Democracy outside the Reichstag is in the trades unions. The task of defending the standard of living of the workers is uphill work to-day, as the attack comes not only from the masters but also from the State. Under the circumstances it is natural that the Social Democrats have lost heavily to the Communists in recent elections, and will probably lose still more.

Lastly we have the Communists. Like the Nazis the Communist party in the Reichstag is supported by "storm detachments" throughout the country, or at any rate throughout the industrial areas. I cannot attempt to give any idea of the extent of the training or of the arms possessed by these detachments. In the past, they gave the Reichswehr a distinct run for their money in the Ruhr rising of 1920. There is no reason to suppose that they are less well organized now than they were then; indeed it seems reasonable to suppose that they have enjoyed the advantage of some measure of assistance from Russian organizers and specialists, although I should be inclined to say that such support has probably fallen off recently owing to the Russian pre-occupation with the Five Year Plan. But naturally this is guess work.

This is only a very brief sketch of the subject. I will only add that the ramifications of the various associations are endless.

5. *The Police, Army and Navy.*—Under the Peace Treaty the establishment of the German police was based on the figures of 1913, and increases were only allowed in proportion to any increase in population. In the aftermath of the revolution many bodies sprang into existence, ostensibly or actually designed to ensure the maintenance of law and order. These greatly exercised the minds of the Inter-Allied Commission of Control, both on account of their excessive numbers and because of their possible connexion with the Reichswehr. They have, however, now been disbanded and Germany is policed by a uniformed force called the *Schupo*, which is administered by the various states but actually controlled by the Reichsminister of the Interior. There are a few other bodies of minor importance, such as the *Landjäger* in the country districts and the Forest Guards. The old municipal police have, so far as I know, disappeared entirely since the evacuation of the Rhineland.

The *Schupo* is the body formerly called the "Green Police." They inherited the green uniforms formerly worn by them—though this colour has, in most states, now been relegated to their facings—and their shakos from the *Jäger* Regiments of the old army which remained

loyal and assisted in the maintenance of order in Berlin immediately after the revolution.

The German police strike the English eye as looking very military. They are always armed when on duty with a revolver and bayonet, though the existing pattern of side-arm is not designed to fix on to a rifle. In the troublous days of 1921 I once saw on the outskirts of the Ruhr four lorry loads of them proceeding to attack a town occupied by Communists. They were armed with rifles and machine guns, and each man had a liberal supply of the old German stick-grenades hung on his belt. I have heard of them using lacrymatory gas for dispersing crowds, and have seen a section of armoured cars manned by police brought into Frankfurt in readiness for a Nazi demonstration, though they were not actually used on that occasion.

It should be borne in mind that conditions in Germany are very different from those obtaining in this country. Before the War the German police were liberally backed by troops, and in civil disturbances of any magnitude it was a regular practice to call out troops under circumstances in which we should not dream of such action. Since the War the position has changed materially. In the first place the government is obliged to take civilian susceptibilities into account far more than previously and, perhaps more important still, troops are not available in sufficient numbers to enable them to be used in aid of the civil power except in cases of the gravest emergency. The police have thus to rely more and more upon themselves, and in the process they have acquired a technique in the handling of crowds more in conformity with our ideas of police procedure. But it should be borne in mind that the conditions with which they have to cope are more difficult than those obtaining here. The Communists and Nazis generally use firearms in their week-end affrays, and under the circumstances it is not surprising that the German police tend to be a bit rough in their methods. Personally, I have always found them friendly enough.

As for their potential use as troops it is clear that most of the older officers and men have served in the army, though the young entry comes from civil life through the police schools; but, in practice, I should think that, on any outbreak of war, the bulk of them would be required for the maintenance of order in the industrial districts where the strong Communist element would inevitably cause trouble, though no doubt the younger men could be drafted into the army.

One of the most salient differences in the German post-war, as opposed to the pre-war, street scene is the absence of military uniform. Except in a garrison town the sight of a soldier in uniform is sufficiently rare to attract immediate attention. The same difference is noticeable

throughout German life. In the days of universal service, every family must have had some link with the army ; to-day the army seems to have disappeared from view and become a thing apart from the life of the ordinary citizen. One can imagine that this segregation of the Reichswehr is part of the deliberate policy of the authorities, who desire the Reichswehr to get on with its training as far away as possible from the influence of politics and the changing gusts of popular opinion. Unlike the pre-war national army, the Reichswehr does not court popularity, whilst in view of Communist agitators and Entente interest in its doings it prefers to remain as invisible as possible, and it has succeeded very well. The strength of the Reichswehr was fixed by the Peace Treaty at 100,000, including not more than 4,000 officers. Men must enlist for twelve years with the colours, and the number of discharges permitted in each year is fixed at a strict maximum figure of 5 per cent., with the object of making it impossible to constitute a Reserve. Armament is also laid down in detail by the Treaty, and all the more modern arms, including heavy artillery, tanks, aircraft and gas, have been prohibited. The Reichswehr is organized in seven divisions and three cavalry divisions, and only two army corps head-quarter staffs are allowed. The General Staff was abolished by the Treaty, and a further important restriction then imposed was the demilitarization of all German territory West of a line drawn parallel to and 50 kilometres East of the Rhine.

It is difficult to say whether the restrictions imposed by the Treaty are literally observed or not. It is reasonable to suppose that where these concern weapons which require a well-equipped modern factory for their manufacture, or which would themselves be difficult to conceal, such as tanks, heavy guns, fighting aircraft and so on, the restrictions are observed, for the reason that there are many, including numerous Germans of the Left, who are on the look-out for such things and ready to tell the world about them. On the other hand, where it is possible to evade such restrictions without exciting notice, it is highly probable that it is done, at any rate on a small scale. Accusations have frequently been made in the past that the provisions as regards reserves are being infringed by passing men surreptitiously through the Reichswehr for short periods of training. This was the method pursued by Prussia after 1806, and is of course one of the most obvious things to look for. But I am inclined to think that if this practice had been very widespread we should have heard more about it. The fact that the companies of the present Reichswehr keep alive the traditions of regiments of the old army might lead one to suppose that the Germans designed to expand their army on this basis in the event of war. The Stahlhelm, and still more the Nazis, have had a good deal of military training and might

serve to expand the existing cadres in case of need. From all I have heard the Reichswehr contains some of the most efficient and best trained troops in the world to-day, and the majority of their N.C.O's are said to be quite capable of commanding platoons and companies, if not battalions. Personally I should be surprised if this were not the case. Military defeat is generally an incentive to efficiency, while establishments have been cut down ruthlessly so that only the very best officers and men could be retained.

To increase the blackness of the picture, the German authorities periodically institute proceedings for treason and the betrayal of military secrets against their own nationals, and such proceedings are held in camera. There was a case only recently against two journalists who published some details about the use of aeroplanes for military purposes.

That is one side of the case ; the other is the problem of utilizing these forces for the purposes of war against any possible external enemy or combination of enemies. First of all the frontiers, or at any rate such districts as cannot be given up to the enemy, must be defended. The frontier districts of Germany—East, West and South—all contain important industrial areas. Then there is the mobilization and expansion of existing cadres. For reasons of secrecy it is obviously impossible that mobilization arrangements could be elaborated in advance in such detail as before the late War. Finally, the majority of the staffs must be improvised, while there are no heavy guns, no tanks and no planes other than converted commercial types. Even admitting that any of these necessary accessories of modern war have been obtained from some unsuspected source, the troops have not worked with them. Without exhausting the difficulties of the situation, I think I have shown that the task would present extraordinary difficulties, and would need a wonderful talent for improvisation, which is the last thing that the Germans possess.

However, so long as armies exist, military problems will call for consideration. Two young German officers were tried last year for maintaining illicit relations with the Nazis. One of the points brought out in their defence was that they were much concerned about the problem of the defence of the German frontiers. I must say that if I were a German officer it is a matter that would worry me !

The navy left to Germany by the Peace Treaty is efficient for its size, and has provided other navies with an interesting technical problem by building a "pocket battleship." The designers of this ship apparently set about constructing the most efficient fighting ship of the battleship or armoured cruiser class within the limits imposed on them by the Peace Treaty, expense being no object. By all accounts they have

succeeded admirably. But, so far, there is only one "pocket battleship" in commission, and the keel of the second has not yet been laid down. It is also probable that the designers of this ship will have been the cause of the admission of their country to future Naval Disarmament Conferences, which would in itself be something of an achievement.

Under the Peace Treaty the Germans were allowed a certain programme of replacements. But, instead of replacing their oldest ships, they have scrapped their more modern tonnage first, thus curtailing the present fighting power of their navy, whilst at the same time acquiring the right to carry out a more ambitious building programme in the future than they were otherwise entitled to do.

In concluding this survey of the police and armed forces of Germany I would say that there is every reason to suppose that they are loyal to the government and unaffected by the influences of party politics. General Groener, Minister for Defence, was also recently appointed Minister for the Interior. This gives him control of the police as well as the army and navy, thereby ensuring the co-ordination of all the forces at the disposal of the government in the event of civil disturbances.

THE STATE OF AFFAIRS TO-DAY.

I. *The Economic Situation.*—When the mark was stabilized in 1924 Germany stood relieved of the burden of her internal debts, with an excellent equipment in the form of fixed assets of all kinds, but entirely devoid of working capital. Reparations were reduced by the Dawes Plan in 1924 to £50,000,000 in that year, rising in the years 1928–1929 to £125,000,000 yearly, and the business world looked forward once more to settled conditions. The first requirement of Germany was working capital, and British and American finance was willing to supply this. But the security was not of the best and consequently the rates of interest were correspondingly high. Municipalities obtained their loans at round about 6 per cent., but 10 per cent., and even more, was required for commercial loans. As Germany could not carry on without funds, she was forced to accept the only terms on which they could be found. The German banks which borrowed the money also added their percentage, with the result that the individual concern often paid as much as 15 per cent. and 20 per cent. interest.

Now the money-making capacity of the best organized concern is limited by various conditions, and if it is paying 15 per cent. for its working capital, this leaves very little margin for the profits out of which fresh capital could be accumulated, either by the concern itself or by its shareholders. Thus an entirely artificial atmosphere was created; the wheels of industry were kept moving, but the profits went to British

and American financiers who were always anxious about the security of their loans. Now that things have gone wrong, there is a tendency to blame the financial interests, in the first place for lending money to Germany at all, and in the second place for charging such high rates of interest. But the whole working of the world's economic system depends on the free granting of credit where it is required, and the rates of interest charged must depend on the security. If credits had not been granted to Germany we should have reached the present impasse sooner, which might or might not have been better for all concerned, and in any case, we should not have been so heavily involved. But it is no use crying over spilt milk. The German outlook was undoubtedly influenced by the obviously artificial state of affairs. Although very few of them would have formulated their thoughts quite so directly at the time, I think they came to reason on these lines :—"you insist on reparations and will only give us credits on these onerous terms ; we are completely in your hands at the moment, so we will rub along as best we can under these conditions until the inevitable crash occurs ; then perhaps somebody will see a little sense." It is evident that such a mental atmosphere following so soon after the experiences of the inflation did not have the happiest effect on German commercial morals ; there has been a good deal of gross extravagance, and there have been several unsavoury scandals, of which perhaps the Frankfurter Allgemeine affair of 1929 and the Nordwolle crash of this year are typical. Few countries, however, have been without some unpleasant incidents in recent years, and I cannot see that we are entitled to throw many stones at the Germans on this score.

Reparations were scaled down once more by the Young Plan in 1929 to an average of just under £100,000,000 yearly, and things went on somehow until May of this year, when the trouble started in earnest. I will confine myself to a brief sketch of the sequence of events which by now are probably fairly familiar.

In May, 1931, the Kreditanstalt in Vienna, the largest financial institution in Austria, got into difficulties, or rather its difficulties came to a head, since Austria has for many years been the weakest spot in the laboriously shored up and carefully whitewashed structure of the central European financial edifice. France offered the necessary accommodation on condition that the Customs Union scheme, which was then under consideration at the Hague Court, was dropped. The Bank of England stepped in with an unconditional loan of £4,000,000 sterling and the situation was momentarily saved. But the whole edifice had been shaken and the trouble spread to Germany. Withdrawals commenced from Berlin, and the movement soon developed into a veritable flight

from the mark. The Darmstädter Bank, equivalent in status to, say, Lloyds Bank in London, got into difficulties, partly caused by the failure of the Nordwolle, the largest wool and wool textile concern in Germany ; the situation was only propped up by the temporary closing of the banks and stock exchanges, and a drastic series of government decrees.

On 20th June, President Hoover, seeing that the situation was serious, made his famous proposal for a one year's moratorium of reparations and inter allied debts. France did not accept the proposal until 6th July, and during the interval the situation naturally did not improve. German statesmen used this period for a series of lightning visits round the capitals of Europe which met with little success from the point of view of alleviating the immediate financial situation. Meanwhile the trouble had spread to London. It was known abroad that London was heavily involved in Germany, and foreign withdrawals of short-term funds commenced. A part of these funds had been re-lent to Germany and were immobilized there. Matters soon began to look serious in England, and we were obliged to borrow funds from France and the United States for use to peg the exchange, with a view to stopping withdrawals of gold from London. Owing to this pressure the Bank of England had to withdraw the £4,000,000 credit from Austria, when the Bank of France stepped in and supplied the necessary funds on condition that the Customs Union scheme was dropped. Finally, France having agreed to the Hoover moratorium proposal, and reparations and inter-allied debts being shelved for a year, a standstill agreement was also reached on 18th August under which the remaining short-term credits were left in Germany. The Hoover moratorium expires on 1st July, 1932 ; the standstill agreement on 29th February.

On 21st September we went off the gold standard, having added a total of £120,000,000 sterling in francs and dollars to our National Debt within the short space of seven weeks in our efforts to keep the £ sterling looking the dollar and the 1931 franc in the face—I say the 1931 franc because the pre-war and immediately post-war franc lost 4/5ths of its gold value between the years 1923 and 1925.

The situation to-day is that Germany is straining every nerve to maintain a surplus of exports over imports, which she is apparently doing quite satisfactorily on paper. But the Reichsbank seems to be unable to prevent a large portion of the funds in question remaining abroad. This means that German nationals are keeping balances abroad which they are unwilling to repatriate, and it is at present impossible to prevent this practice, although every kind of regulation on the subject is in force. There is also a good deal of dumping being carried on by German manufacturers with a view to producing credits abroad for the

purchase of necessary raw materials. The German position has not been made any easier by our last-minute conversion to the principles of Tariff Reform, though it is not easy to see what action we could have taken under existing circumstances other than to adopt tariffs. Meanwhile a conference is sitting at Basel under the auspices of the Bank of International Settlements, summoned by the Germans under the terms of the Young Plan to enquire into her capacity to pay reparations.¹ An international committee of commercial creditors is also sitting in Berlin to enquire into the question of German commercial debts, and it is generally assumed that this is the prelude to a full dress international conference on these subjects, the scope of which will be very comprehensive. Without going into figures of German indebtedness, trade balance and so on, I will content myself by stating that London is involved on short term to the extent of some £55,000,000.

2. The Political and Military Situation.—The internal political situation is extremely delicate. The existence of the present government depends on the patience of the German nation, and although they have shown themselves to be some of the most long suffering people in the world, they are growing very impatient. It is highly probable that the political parties in opposition are extremely glad not to be in office at the moment, and that they are waiting to see what is going to happen before showing their hands. The Reichstag is to meet in February; the elections for the Prussian Landtag take place in March or April; finally there are Presidential elections due to take place on 13th March, although I believe that Hindenburg's term of office may probably be prolonged and the elections thereby avoided.²

Events in Germany are thus waiting on the development of the external political situation. France seems to have succeeded in isolating Germany, who appears to stand in her economic and political nakedness face to face with a neighbour armed with about half the world's gold supply and backed by a formidable array of allies. England, whom Germany used to regard as more benevolent than France, and who exerted some moderating influence after, if not before or during, the Ruhr occupation, is obviously hampered by her own economic difficulties from taking much hand in the game—at any rate at the present stage; the Germans have probably remarked that British opinion appears to be undergoing one of its periodical swings away from continental entanglements. Italy is probably friendly, but apart from causing France a certain amount of anxiety about their common frontier, it is difficult to see what influence she exerts at the moment. On a previous

¹ This conference rendered its report at the New Year.—EDITOR.

² Since this was written, it has been decided to hold an election.—EDITOR.

occasion, at the Genoa Conference in 1922, Germany created a considerable diversion by springing the Treaty of Rapallo on to the world, though whether she derived any benefit from that step is another matter. There has been a lot of conjecture as to whether this Treaty included any secret military clauses. But Soviet Russia is deeply preoccupied with the Five Year Plan and has her own difficulties about finance, so that it is unlikely that she will put herself out for the "beaux yeux" of any capitalist state. Obviously German industry cannot afford to give any more long-term credits on doubtful security, and the Russians have been taking their orders for machinery where the money is, i.e., to France, though as far as I know they have not met with much success there either.

It is difficult to see how the Germans could deliberately seek a way out of the impasse by attempting to cut the Gordian knot with the sword. It is true that Germany, in common with most other countries, has formally renounced the right to have recourse to such means, but it is still conceivable that a nation in desperate straits would choose to disregard this undertaking provided that such action offered a reasonable chance of success. It is true that the French army is on a one-year service basis, and that the training of the Reichswehr is probably infinitely superior to that of the French, and still more so to that of the armies of any of Germany's other possible adversaries. Yet, even so, the disparity under any circumstances that I can possibly envisage seems to me so great as to rule out anything of the kind from the realm of practical politics. Also, under the Treaty of Locarno, Britain and Italy have guaranteed the existing Franco-German frontier.

The Young Plan contains a provision for possible French action in the event of German default in reparation payments. If it is thought that Germany is defaulting voluntarily, her creditors may make application to the Permanent Court of International Justice at the Hague, and if that body upholds the view that the default is voluntary, the aggrieved parties maintain their liberty of action under the Peace Treaty. Thus the possibility exists that the French might reoccupy German territory under such circumstances. However, I am inclined to think that such a measure would involve a military mobilization, and, if I am correct, this materially reduces the chances of any such occurrence. Moreover, there are French elections coming in April, a fact which should exert a restraining influence on any firebrands. In my opinion, any reoccupation of German territory by French troops would lead to bloodshed, and then, to put it bluntly, the fat would be in the fire. I cannot think that the French would willingly run such a risk.

CONCLUSION

The situation seems to have reached a complete impasse and we are hard up against the terms of the problems involved. These are in part the legacy of the Peace Treaty and in part due to weaknesses in our economic and political system brought to light by the greatly accelerated growth and development of recent years. It is difficult to see how any solution can be found that will bring speedy relief; the trouble is too widespread and involves too many factors. However, the French appear to regard the whole matter in a much simpler light, while the Germans are in such a position that they must find it difficult to reason clearly and dispassionately at all.

I can think of two occasions in French history when France stood in the position of arbiter of the destinies of Europe—under Louis XIV and again under Napoleon I. It must seem to the French to-day that they are once more in the same position. Now the Frenchman has a logical mind; he builds up a perfect argument and acts in strict accordance with the plan based on it. But his carefully thought out schemes do not always bear fruit; and the reason, as often as not, is to be found in the fact that his argument is based on entirely false premises. I cannot think that the French will now willingly concede a single point to the Germans without a very adequate *quid pro quo*. They regarded Germany as a serious menace to themselves in 1919, and they still do so to-day. I think the flaw in the French conception resides in the fact that it is based on the fundamental idea that we are living in a world which is substantially unchanged since the last century, whereas I believe that the mound on which the French rooster is perched so imposingly is not really firm ground at all.

The German position is not nearly so easy to define, and their probable action is more difficult to forecast. The German mind is in a state of chaos; they are unable to see any way out of the present quagmire, and they are beginning to turn their thoughts to the contemplation of a new post-crisis world before they have solved the problem of how to get there; consequently it is exceedingly difficult to say what they are likely to do. In the past, under such circumstances they have seldom taken what we should consider to be the most sensible line of action, and I fail to see any reason to hope that they will do so on this occasion.

But Germany and France are not the only parties concerned in the problem, which is one of vital interest to all the Powers. Britain and the United States are the principal commercial creditors of Germany, and the United States are, for all practical purposes, the ultimate recipients of reparations which come back to them in the shape of inter-allied debts.

I think it not impossible that this obstacle may be overcome, though it should be remembered that the United States has now to face the biggest budget deficit in history, and that the bulk of the so called unconditional payments from Germany is due to France, where such sums are earmarked for the service of the loans issued for the reconstruction of the devastated areas. The cancellation of reparations and inter-allied debts naturally appeals to us more than to other countries because in our case they approximately balance. But it is as harmful to the interests of the United States and of ourselves as to those of Germany that the present situation should continue, while the rest of the world including France is also bound to be adversely affected. The only way to clear up the situation from the commercial point of view is to grant Germany fresh long-term credits, and this is impossible until the political situation is clearer.

Thus we see the whole vicious circle. Nevertheless, I draw some comfort from the fact that I do not believe that the bulk of the German people want war any more than the bulk of the French nation; moreover, the possibilities of economic co-operation between the two countries are immense. Lastly, I think that our abandonment of the gold standard, and the fact that we have a government in power backed by the strongest parliamentary majority for a century, puts us in a better position than we have been for a long time. These facts lead me to hope that before long we may once more be able to make what I personally believe to be our natural contribution to the international common pot—leadership.

DISCUSSION.

COMMANDER G. C. MUIRHEAD GOULD, R.N.: Can the Lecturer give us a little more detail about the connection between Herr Hitler's National Party and Herr Hugenberg's Nationalists. I believe that they have some similarities in their policy, and we have recently seen in the press questions of coalition between one or other of them and the Chancellor's present Centre Party—the Roman Catholic Party.

ADMIRAL SIR ERNEST GAUNT: I would like to ask the Lecturer whether he can give us a general idea as to the feeling of Germany with regard to our own country. It is a matter of perhaps more interest than any other, how Russia and Germany feel towards England.

THE LECTURER

THE LECTURER in reply said: Quite recently I wrote to a German friend to ask him what was the connexion between the Nationalists and the Nazis. Being a busy man, he did not answer by letter but sent me a column from the *Frankfurter Zeitung* reporting a meeting held in Frankfurt by the *Deutsch Nationalen*. In this meeting a Nationalist member of the Reichstag in rather high-falutin'

words thanked God that he was above all things a Nationalist, but said that, if he had not been a Nationalist, the one thing in the world that he would have liked to be, and certainly would have been, was a Nazi. I think this illustrates the present connexion between the two parties. In many ways their interests are identical; moreover, in the initial stages of cabinet-making and in such like matters I think it quite possible that they might come to terms, but they would probably fall out sooner or later, because the socialist part of the Nazi's creed is very much to the fore, whereas the Nationalists are not going to play with socialism or anything of the kind.

As to any possible connexion between either or both of these parties and the *Zentrum*, I think it by no means impossible that a coalition might be formed which would include the Nazis and some of the Nationalist elements and the *Zentrum*. In the event of a coalition of that kind coming about, the Social Democrats would almost certainly drop out of the government, but if the Nazis gain very heavily at the next elections I, personally, think that it is obvious that Brüning would be very ill-advised to make any definite agreement with his outside creditors—France or anybody else—without first stating definitely that he wished to have the strongest party in the German State in the government and definitely committed to his proposed policy.

Concerning feeling in Germany towards ourselves, I may say that I have always found the Germans exceptionally friendly. I do not think that they love us, but they are perfectly prepared to accept us as quite useful people—people with whom they can work. Naturally, they consider their own interests; I suppose that most nations do that. But they can see that in many ways our outlook is more in conformity with their own than that of the French. They are inclined to think that we are somewhat more tied to the French than I, personally, believe that we really are. They reckon that we are satellites of France, and I think that we have given them every reason to do so up to date, but whether they will continue to think so is another matter. This depends on what this record parliamentary majority of ours is going to do.

THE CHAIRMAN

I have listened to Major Reynolds' lecture with deep interest. I should perhaps have put my emphasis occasionally on rather different points, or have liked to qualify some of his judgments, but in the main I found myself in entire agreement with the picture which he has painted of Germany and of German difficulties. If I am tempted to expand one point, it will be, perhaps, to explain why Germany must seem from the British angle to be such a terribly restless place, and so unstable and nervous in its movements. We forget, I think, in the first place the economic distress upon which the Lecturer laid emphasis. This is very real, and in my opinion has almost reached breaking-point. The standard of living has been reduced to a point at which no civilised working class population can tolerate life for a long time, unless it very definitely has before it a hope of relief. Again, I think that one of the things which we are tempted to forget is that Germany is a very young country. I think it was Oscar Wilde who remarked that the youth of America was its oldest tradition; in any case, the United States as a nation, and even as a country, is a great deal older than Germany. Germany, to my mind, is only about twelve or thirteen years old. Politically it is certainly no older; indeed I think it is one of the facts that we must always bear in mind in considering Germany's political activities, namely, that they are always extraordinarily inexperienced. The Lecturer referred to their lack of parliamentary sense;

it would be rather surprising if they had any parliamentary sense, for until 1918 they had no chance to acquire it. Perhaps the thing that struck me most when I came to live there and to watch their political institutions from close at hand was the difficulty of running parliamentary institutions without politicians. I never thought that I should come to the conclusion that politicians were a necessary virtue in a parliamentary state, but they are, and I believe also that one of the reasons why Herr Stresemann succeeded so well was not so much that he was fundamentally a great man—I think that he was in many ways a great man—but that the greatness of his achievements was largely an accident of his position since, having a clear-cut policy which he saw was the right one for his country, he was politician enough and had a long enough political training to carry that policy through.

Now I think I ought to give you one warning. It may be unnecessary, but I think from observation that when an Englishman, or a Scotsman or a Welshman lives in a foreign country for any length of time he espouses that country's cause. Therefore, whatever Major Reynolds says and whatever I might say, if I had the time, would probably be subject to that amount of qualification. Nevertheless, as one who knows Germany, I fully appreciate his friendly references to that country.

The customary votes of thanks to the Lecturer and Chairman were carried by acclamation.

THE INTERNATIONAL SITUATION

THE SINO-JAPANESE CONFLICT

By MAJOR E. W. POLSON NEWMAN, B.A., F.R.G.S.

MANCHURIA.

THE World in general and Europe in particular were so much preoccupied with economic and domestic problems that the full significance of what has taken place in Manchuria, and of its potential effect on the balance of power in the Far East, was not, until recently, fully appreciated. The essential facts are that, without a formal declaration of war, yet by force of arms, Japan has obtained what amounts to military control of a country almost as large as France and Germany combined, while the League of Nations has proved powerless to stop the fighting and has, so far, shown itself unable to act as mediator between the rival interests.

Manchuria with its vast mineral and agricultural resources, and flanked by three covetous and mutually suspicious neighbours, has for long been a cause for unrest, and the situation has been aggravated of late by the inability of China, as the Power nominally in possession, to govern the country effectively. Nevertheless, to China, Manchuria represents at once the historic route of invasion and of her humiliation, and the only part of her territory suitable for the expansion of her excessive population. To Japan, Manchuria is a bulwark against threats to her existence as an independent nation, and a source for supplies of food-stuffs and raw materials of the utmost importance to her industrial development, while it is an ever expanding market for her manufactures. The population of 28 millions includes nearly a million Japanese subjects, the greater proportion of whom are Koreans; there are also very large Japanese investments in the country, while, under the terms of an existing treaty, 15,000 Japanese troops are maintained there for railway protection.

International interests in Manchuria centre largely in the railways¹ which, since there are few roads, are vital to the country generally and to Japanese interests in particular. Of the total mileage, China owns

¹ See map facing p. 178.

more than half, Russia 1,070 miles, and Japan about 700 miles. The Chinese railways are largely financed by foreign, chiefly Japanese, capital; while the Manchurian section of the Peking-Mukden line, between Mukden and Shanhaikwan with branch lines, was built with British capital. The Russian-owned Chinese Eastern Railway (C.E.R.), operated under Sino-Soviet joint management, constitutes a link in the world route from Europe to Vladivostok and a main factor in the development of North Manchuria. The line, however, which concerns us most at present is the South Manchuria Railway (S.M.R.), a Japanese undertaking which runs through the heart of South Manchuria with a terminus at the highly important port of Dairen, while it connects with the lines running to China proper, Korea, and westward to Europe. Its main lines are Dairen-Mukden-Changchun, where it connects with the C.E.R., and Antung-Mukden. As this line plays a most important part in the agricultural and mineral development of the country and in Japanese economic endeavour, it is but natural that Japan should make every effort to protect it against attack or interference. Public security in Manchuria on the whole is maintained by the Chinese authorities, but the Japanese have entire control of their own railway zone and of the leased territory, viz., round Port Arthur and Dairen, while Japanese influence in these areas is supported by the presence of Japanese troops in Korea.

THE MILITARY OPERATIONS.

Were it not for the fundamental political differences between Japan and China over Manchuria, the military operations now taking place could almost be regarded as police measures; but, as the irregular armed bands which disturb public security are largely composed of discharged Chinese soldiery, where they are not actually subsidized by the Chinese authorities, it is difficult to draw any hard and fast line between Chinese troops and irregular bandits. This aspect of the operations as police operations against bandits is enhanced by the astounding disparity in numbers between the highly efficient Japanese troops, who, in the whole of Manchuria, never amounted to more than a few thousands, and the elusive hordes of ill-disciplined Chinese pseudo-soldiers. It is not surprising, then, that there should have been no visible plan of campaign on either side. While the Chinese, sometimes in collaboration with, and at other times independent of, the large number of bandits infesting these districts, have concentrated their efforts on intermittent interference with Japanese rights in the railway zone, the Japanese have practically confined their attention to the protection of their interests in that area by means of the skilfully conducted movements of small columns.

Such military operations as have taken place in Manchuria can be divided into three phases:—

- (1) The fighting in the vicinity of the S.M.R. after the destruction by the Chinese of a section of the line north of Mukden on 18th September;
- (2) The fighting on the Nonni River;
- (3) The Chinese evacuation of Chinchow and withdrawal South of the Great Wall.

The course of events has been the following. On 17th August the Japanese War Ministry announced that a certain general staff officer had been arrested in Manchuria, then robbed and murdered by soldiers of the Mukden Army. Chinese officials sent to investigate the incident reported that they could discover nothing tallying with the Japanese allegations. Then, yielding to Japanese remonstrances, a further investigation was ordered by the Chinese, who finally admitted that the officer in question had been assassinated. This affair, following as it did on the murder of a number of Korean farmers at Wanpaoshan, and combined with endless Japanese complaints regarding the continued violation by the Chinese of Treaty rights, together with the refusal of Chinese Nationalist leaders to recognize the interests of Japan in Manchuria, aroused Japanese feeling to such a pitch that a clash became inevitable.

On 18th September Chinese soldiers from the Petaying barracks near Mukden destroyed a portion of the S.M.R. track and attacked the railway guards. The Japanese troops in the neighbourhood were called out, the barracks were attacked and taken, the arsenal and aerodrome at Mukden seized, and early on the following morning the city itself occupied. Chang Hsueh-Liang, the Governor of Manchuria, was at the time in Peking; but he is reported, on receiving the news, to have telegraphed ordering the Chinese troops to offer no resistance. To the Government in Tokyo, which had in the face of many difficulties been patiently pursuing a policy of conciliation towards China, these events came as a complete and disconcerting surprise, and strenuous efforts were immediately made by the Ministry of Foreign Affairs to localize the trouble. But the army had taken matters into its own hands, and the developments which followed in quick succession showed clearly that it had made in advance all the preparations necessary to deal with the situation. Following the occupation of Mukden, whence all the Chinese officials had fled, the general in command of the Japanese garrison in Manchuria moved his headquarters North from Port Arthur to that city; the troops in Korea were ordered to "stand to" for emergencies; the bridge-head at Antung was seized; both ends of the S.M.R. were secured by disarming the Chinese troops at Changchun and Newchwang; Fushun, Changtu, Kirin and other places were occupied; and martial

law was proclaimed over the whole S.M.R. system outside the leased territory. Kirin is far outside the railway zone, but the reason given for its seizure was the necessity for protecting the flank of the Japanese railway, which was menaced by the concentration of Chinese troops. Acting entirely on his own initiative, the G.O.C. in Korea also moved a small body of men into the Chientao district, and rumours were current even of an advance on Harbin ; but they proved to be false, and the authorities in Tokyo stated definitely that no troops would be moved North of Changchun. On 23rd September the Japanese troops were withdrawn to within the railway zone, leaving small detachments at Mukden, Changchun and Kirin for police purposes. The Japanese maintained that this attack was carried out by Chinese regular troops, who numbered 220,000 in these districts, whereas the Japanese railway guards did not exceed 10,400. They also maintained that the Japanese reinforcements from Korea brought the total number of Japanese troops in Manchuria up to 14,400, which was less than the number prescribed by Treaty, i.e., 15,000.

It is claimed that this last attack on the S.M.R. was part of a definite Chinese policy which has been applied persistently during the past two years, and that the Japanese authorities have records of over three hundred incidents which still require settlement. In the action on the railway North of Mukden, it is stated that the Chinese lost about 300 killed and an equal number of prisoners, while the remainder, numbering over 400, fled in the direction of Kirin. A panic seems to have seized many of the inhabitants, soldiers and civilians alike, for there was a general rush to leave the railway area for the hinterland or the ports. The whole of the Chinese army, estimated at about 200,000 men, appears to have vanished, as have also many of the local Chinese officials. In all the towns occupied the Japanese arranged for the operation of Chinese administration, under military supervision, with the exception of Mukden where a temporary Sino-Japanese administration was set up under a Japanese military officer. On 8th October Japanese aeroplanes bombed Chinchow about a hundred miles South-West of Mukden.

On 24th September, in order to allay fears abroad, the Japanese Government issued a statement declaring that Japan had no political or territorial designs in China, and expressing willingness to co-operate with the latter in devising means to prevent a recurrence of incidents of this nature, but claiming for Japanese subjects the right to assist in the development of Manchuria and to protection in the pursuit of their peaceful enterprises. The Japanese maintained that they had been compelled to take action in order to safeguard their Treaty rights, and to prevent serious losses and disintegration of trade owing to the failure

of the Chinese authorities to maintain good order and security in Manchuria. The Chinese attitude, on the other hand, was that, Manchuria being part of China, all questions as to the degree to which Japan was justified in taking matters into her own hands for the protection of her interests were irrelevant.

At the beginning of October the points outside the S.M.R. zone in Japanese military occupation were Mukden, Kirin, Chulinho, Simmun, Tielchuangtai, and Taonan, but the Japanese authorities repeatedly expressed their determination to withdraw their troops within the zone as soon as circumstances permitted. The deadlock between the two parties arose principally from their opposing points of view in regard to the negotiations for a settlement of the issue. The Chinese maintained that negotiations should be conducted through the League of Nations, while the Japanese held that they should be conducted between the two countries directly. It must, however, always be borne in mind that, as long as the Chinese show their utter incapacity to maintain public security and protect foreign interests in Manchuria, Japan is compelled either to allow her vital interests to suffer incalculable damage or to take the law into her own hands. No self-respecting country would choose the first alternative; in choosing the second Japan has had to undergo some rather severe criticism abroad. Although the intensive stage of operations may be said to have ended with the partial Japanese evacuation and the dispersal of the main body of the Chinese forces, much military activity on a minor scale followed, mainly against disbanded troops and the bandits who harass the countryside. It was asserted that on several occasions Japanese airmen attacked trains containing only unarmed passengers, while the bombing of Chinchow, a town where Chang Hsueh-Liang had established a temporary seat of Government, was the subject of unfavourable comment abroad. The intentional bombing of trains was denied by the Japanese, while their defence of the attack on Chinchow was that Chinese troops in the town had previously opened fire on a reconnaissance aeroplane.

FIGHTING ON THE RIVER NONNI.

At the beginning of November three bridges on the railway between Taonan and Anganchi, where it crosses the River Nonni, were blown up by Chinese soldiery. According to Japanese reports, the damage was done by the troops of General Mah Chan San, Governor of the Heilungkiang province, and may have been merely a move in the operations directed against Chang Hai-feng, another local general who was reported to be engaged in a military adventure on his own account in that area. On 2nd November it was announced from Tokyo that troops had been moved up the line to protect a working party sent to

repair the bridges, which was an urgent matter since the movement of crops was being held up, and General Mah was understood to have consented to this being done. When, however, the Japanese troops arrived on the scene, they were attacked by forces believed to be commanded by Wan Fu-lin, a subordinate of General Mah, owing, it was said, to a misunderstanding by the former of the orders issued to him. Whatever the circumstances may have been, there seems no doubt that fighting took place between Chinese and Japanese troops and continued intermittently up to 15th November. In order to avoid hostilities, arrangements were made that the Chinese troops on both sides of the river should not come within six miles of the damaged bridges, but on 4th November General Mah's troops advanced to within two miles of Chiangchiao and suddenly opened fire on the Japanese troops. In the fighting which ensued the Japanese sustained about fifteen casualties and retreated. The Japanese commander at Chang-chun, on receipt of this news, decided to send to that spot reinforcements of between 3,000 and 4,000 men. When the first of these troops reached the scene of the fighting, General Mah's force was quickly overcome, the Japanese losing 36 killed and about 450 wounded by 6th November, while the Chinese left about 200 dead on the field of action. On receipt of reports of this engagement, the remainder of the Japanese reinforcements were ordered back to Chengchiatun. On 6th November fighting continued at Tahsien, on the railway just North of the River Nonni, and General Mah's troops were reported to be in retreat towards Anganchi. The Japanese War Office announced on 7th November that orders had been given to the troops to refrain from pursuing the Chinese forces beyond Tahsien in the direction of Anganchi. The Chinese, however, reported that the Japanese had delivered an ultimatum to General Mah demanding the immediate surrender of Tsitsihar, with which he refused to comply. On 10th November the Chinese and Japanese forces were about seven miles apart, with the Chinese centre resting on Tahsing. The total Japanese forces were reported not to exceed 1,500 men. On 13th November it was reported that two out of the three bridges had been repaired, and that the troops would withdraw as soon as the third was completed, provided that General Mah would guarantee their safety. On the following day General Honjo, the Japanese commander, received instructions to give General Mah ten days to retire to Tsitsihar, and to withdraw his reinforcements to their original stations, the Japanese undertaking to withdraw to Taonan and Chenchiatun as soon as General Mah complied with these conditions. At the same time proposals were made for the management of the railway.

By 15th November the original work of repair had been carried out, but the prospects for the efficient working of the railway were

not to any extent improved, as General Mah's troops were entrenched across the line and all traffic northward to the junction with the C.E.R. was paralysed. The reports of General Mah's attitude are conflicting. From now until 18th November, the situation remains obscure, but it seems certain that fighting in some form was going on all the time. On 15th the Japanese were reported to have driven off the Chinese cavalry, but the total forces of General Mah were estimated at about 20,000 men. Attacks on the railway continued, and attempts to destroy the bridges were reported. On 18th the forces of General Mah were defeated North of the River Nonni, and retired North of the C.E.R. The Japanese were reported to have occupied Anganchi and to be holding the outskirts of Tsitsihar.

THE FINAL WITHDRAWAL FROM MANCHURIA BY CHINA.

The situation had now come about that Japan stood in military possession of all strategic points in Manchuria, from Tsitsihar in the North to the Gulf of Pechili in the South, excepting only the city of Chinchow and the territory to the South-West of it. But the presence of numerous Chinese troops at that point left the Japanese somewhat uneasy, as their own numbers grew more and more inferior to those of the Chinese, who were steadily massing forces round Chinchow. Japan also again asserted that the Chinese were still further conniving at, if not actively encouraging, the banditry along the railways. In spite of this attitude a pause in the operations now took place, partly as the result of a political crisis in both China and Japan, and partly as the outcome of the protests of the League of Nations combined with diplomatic pressure.

But this did not imply that military activity was discontinued. On 5th December General Honjo is understood to have sent an ultimatum to Chang Hsueh-Liang insisting on the withdrawal of all Chinese troops from the Chinchow area, as he considered the continued massing of troops in that district to be highly provocative. On the following day it was stated in Tokyo that the Japanese Government still hoped that Chang Hsueh-Liang would be induced to withdraw his troops voluntarily to within the Great Wall. At the same time, it was frankly admitted that the Japanese were prepared to use force if he failed to withdraw of his own accord, as they were convinced that the situation would never be stabilized until that source of trouble was removed. Meanwhile it was claimed that the railway was still being continually attacked by Chinese troops and bandits, the latter terrorizing a large area to the South-West of Mukden. On 15th December Chinese forces attacked at Tiehling, Chengchiatun and Newchwang, while it was stated officially on the following day that part of Chang Hsueh-Liang's troops had withdrawn from Chinchow.

Meanwhile, General Minami, liaison officer with the Ministry of War in Tokyo, issued a statement regarding the necessity of ridding Manchuria of bandits, whose numbers were given at 100,000, and Japanese observers reported the Chinese to be steadily increasing their forces to the Northward of the Great Wall. On 19th December fighting began West of Mukden with a Japanese attack from the air pending the arrival of troops to engage a force of 10,000 Chinese regulars, who were moving to attack the city. The strength of regulars and bandits was estimated at 60,000, and the Japanese claimed to have proof that Chinese regulars and bandits were acting in concert.

Consequently General Honjo decided to clear the whole region West of the Liao River. Japanese forces moved Westward from Haicheng, North-East of Yingkow, and fighting took place between armoured trains at Tienchwangtai. The difficulty of clearing such a region is intensified by the character of the bandits operating in Manchuria. Consisting of large groups, partly employed and instigated by the authorities in Nanking and Peking, they numbered about 30,000 towards the end of December, although two months earlier their numbers did not exceed 1,300. The Japanese said they could not recognize any difference between Chinese soldiers and bandits, and in view of the activities of such irregular forces on the Mukden-Antung Railway further troops were despatched to Manchuria.

Accordingly a detachment of Japanese troops posted at Shanhaiwan, at the point where the Great Wall touches the sea, was strengthened; two additional Japanese battalions were despatched to Tientsin, while Japanese warships appeared off the coast. The Chinese at Chinchor were thus threatened from three sides. After fighting had taken place at Tienchwangtai, the Japanese advanced towards Kaopangtze, having occupied Tawa, on 30th December. Meanwhile the Chinese Marshal Chang Hsueh-Liang, seeing that his position was gravely compromised, had ordered the garrison at Chinchor to withdraw on 29th December. The Japanese, considering that they had gained their object, now moderated the rate of their advance, and so occupied Chinchor without opposition on 2nd January, shortly after the retirement of the last Chinese troops. Lienshan, thirty miles South of Chinchor, was occupied on 5th January, when the last Chinese soldier withdrew to the South of the Great Wall. The Japanese were thus left in complete mastery of Manchuria.

THE EVENTS AT HARBIN.

At Harbin rioting, looting and similar disturbances had been rife between two rival factions of Chinese, and in December last Japanese subjects were maltreated and their property destroyed. Japan therefore decided to re-establish order by force, and troops were despatched to

Harbin. But a new factor in the situation thereupon arose. The Soviet management of the Chinese Eastern Railway (C.E.R.) declined to allow the Japanese to use that railway to reach the town, and certain bridges were actually destroyed, whether by Soviet or Chinese action is not, at present, quite clear. The Japanese, however, are determined to restore order in Harbin, and have set about repairing the bridges. Some fighting began at Harbin on 27th January, and Japanese forces entered the city on 3rd February, but the details are as yet obscure.

THE CRISIS AT SHANGHAI.

The events which had taken place in Manchuria were not long in giving rise to anti-Japanese incidents in Shanghai. These were intensified by wide-spread Chinese declarations of a boycott of Japanese goods in China, and Japanese-owned cotton mills in Shanghai became the scene of nationalist manifestations. The climax, however, came on 20th January, when five Japanese monks were assaulted in Shanghai. The Japanese Admiral Shiosawa, commanding the Japanese ships in Chinese waters, thereupon issued a formal demand to the Chinese authorities for the dissolution of all anti-Japanese associations and an indemnity for the assault on the monks, adding that, in the event of an unsatisfactory reply, drastic action would be taken by the Japanese fleet to safeguard Japanese interests. The Japanese in Shanghai were growing more and more restless, and attacked a Chinese towel factory, for which an apology was tendered to the International Authorities.

The Chinese, meanwhile, were playing for time and by their shilly-shallying over the question of meeting the Japanese demands further exasperated Japanese feeling. The small Japanese naval force, moreover, saw itself threatened, if it delayed too long, by an overwhelming concentration of Chinese troops. Consequently, on 28th January, the Japanese Admiral, expressing his entire dissatisfaction with the Chinese attitude and declarations, and in spite of a belated acceptance by the Chinese of the Japanese demands, ordered an attack to be made, mainly by marines and aircraft, on Chapei, the native Chinese quarter of Shanghai. This was carried out with considerable effect, with many casualties and much loss of property on the Chinese side. The international authorities at Shanghai have attempted to establish an Armistice while the Japanese are reported to be despatching naval and military reinforcements to Shanghai.

THE LEAGUE OF NATIONS AND MANCHURIA.

The question of the Sino-Japanese conflict in Manchuria was first brought before the Council of the League of Nations at Geneva on 21st September, when China appealed for the League's intervention under Article XI of the Covenant.

An exhortation to both parties to desist from "any acts likely to aggravate the situation" was followed by much tedious discussion, which left Japan resentful of any further intervention. Diplomatic representations followed.

The Council again met on 13th October, but found the situation unchanged : the Japanese were prepared to enter into direct negotiations with China ; the Chinese refused to negotiate until the Japanese troops were withdrawn. In spite of Japanese disapproval, a representative of the United States joined, temporarily, the League Council. No progress was made with the discussion, although M. Briand proposed to treat the armed encounter of 18th September apart from the whole question of Sino-Japanese relations. Article 2 of the Kellogg Pact was now invoked by the League Council, without better results. After adopting a long resolution, which amounted to little more than pious exhortations, the Council decided to adjourn until 16th November.

Two days later the Japanese Government published their "fundamental principles" in a Note containing these "Five Points":—

- (1) Mutual repudiation of aggressive policies and conduct ;
- (2) Respect for China's territorial integrity ;
- (3) Complete suppression of all organized movements interfering with the freedom of trade and stirring up international hatred ;
- (4) Effective protection throughout Manchuria of all peaceful pursuits undertaken by Japanese subjects ;
- (5) Respect for the Treaty rights of Japan in Manchuria.

Throughout the discussions the Chinese representative could only attempt to entangle the League into taking action against Japan by cleverly exploiting all possible legal and verbal subtleties.

The next meeting of the League Council took place on 16th November in Paris. General Dawes, U.S. Ambassador in London, attended the meetings. The Council met with little better success in reconciling the conflicting Sino-Japanese interests, and the resolutions and discussions came to no better end than those of the previous session. Japan remained obdurate in adhering to her "Five Points," particularly in claiming full respect for her Treaty rights.

As the Japanese troops were then actually approaching Chinchow, the situation grew more tense. The Chinese offered to withdraw South of the Great Wall, provided the League established a neutral zone, to be policed by foreign garrisons in China, between the contending forces. But the British Government declined to allow British troops to be employed in this manner ; so the matter was dropped. A further proposal was made that foreign "observers" should be despatched to

establish such a zone. They were appointed and arrived on the scene on 28th November, but nothing could be done. On 29th November strong representations addressed to both Governments by the League Council seem to have checked the operations for a time.

On 10th December the Council published a long resolution which meant, in effect, that a Commission should be sent by the League to Manchuria to put an end to the fighting and find a compromise for the future relations of the two Powers in that region. The Japanese stubbornly clung to their "Five Points," while the Chinese still further sought to entangle the League into taking active steps to coerce Japan.

But with the publication of this resolution it became clear that the League Council had no means of enforcing its wishes in the Far East; the session of the Council then terminated. The political crisis in Japan now being settled, the Japanese determined to put an end to the period of uncertainty that was being prolonged by the presence of Chinese troops at Chinchow. The "anti-banditry" campaign was renewed, although it had, to some extent, been maintained by a continued series of aircraft attacks. In the meanwhile Japan made it perfectly clear that she proposed to brook no third-party intervention in Manchuria. The League Commission left for Manchuria on 3rd February.

On 28th January the Council of the League met at Geneva and the Chinese representative, Dr. Yen, placed before the Council a demand on behalf of China that the League of Nations should take action against Japan, on the grounds of the attack of 28th January, on the native city of Chapei at Shanghai, under articles X and XV of the Covenant¹.

THE DISARMAMENT CONFERENCE²

THE Disarmament Conference opened at Geneva on 2nd February. The British Delegation consists of the following members:—
Mr. J. Ramsay MacDonald, the Premier; Sir John Simon, Foreign Secretary; Mr. J. H. Thomas, Dominions Secretary; Viscount Hailsham,

¹ Article X provides for the Council to advise upon the means by which the League shall fulfil its obligation to preserve the territorial integrity and political independence of members against external aggression.

Article XV provides for the reference of a dispute to the Assembly by the Council.

The invocation of Articles X and XV opens the way for a subsequent invocation of Article XVI., the most powerful weapon in the hands of the League, since it calls for an economic boycott against an aggressor nation.

² Some representative British, United States, German and French views on Disarmament were given in the International Situation section of the August, 1931, Journal.

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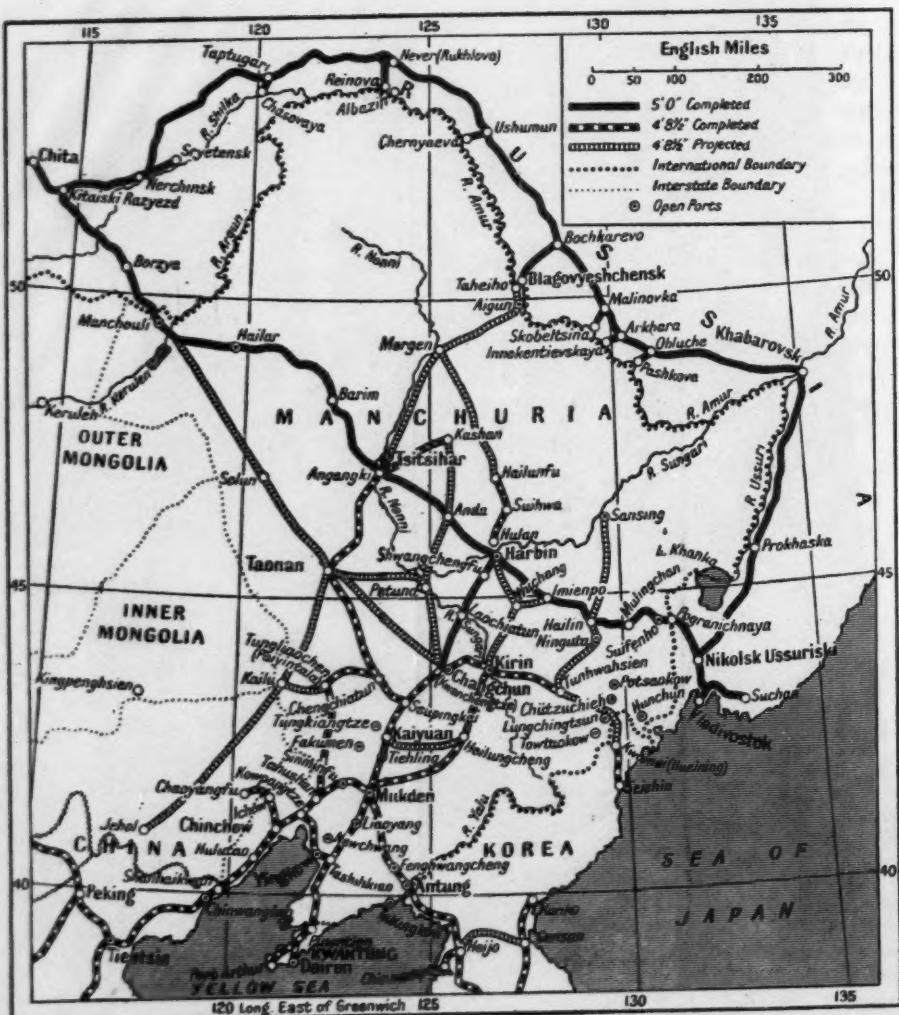
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THE SINO-JAPANESE CONFLICT

Secretary for War ; The Marquis of Londonderry, Secretary for Air ; Sir Bolton Eyres-Monsell, First Lord of the Admiralty.

There will be one substitute delegate, Mrs. Corbett Ashby.

Concerning the omission from the delegation of the name of Viscount Cecil of Chelwood, an official of the League of Nations Union made the following statement on behalf of Lord Cecil : "Lord Cecil, having given very careful consideration to the matter, and after long and friendly conversation with the Foreign Secretary, feels that it would be of more value to the cause of international peace and disarmament if he remained outside the delegation."

The Admiralty is represented by : Vice-Admiral F. C. Dreyer, C.B., C.B.E., Deputy Chief of the Naval Staff ; Vice-Admiral A. D. P. R. Pound, C.B. ; Commander G. D. Belben, D.S.C., A.M. ; and Paymaster Commander E. A. Symes.

The General Staff representatives are : Brigadier A. C. Temperley, C.B., C.M.G., D.S.O. ; Colonel A. G. C. Dawnay, C.B.E., D.S.O. ; Major B. H. Robertson, D.S.O., M.C.

The Air Ministry have sent : Air Vice-Marshal C. S. Burnett, C.B., C.B.E., D.S.O., Deputy Chief of the Air Staff ; Group Captain J. T. Babington, D.S.O., Air Ministry Representative, League of Nations ; Group Captain T. L. Leigh-Mallory, D.S.O. ; Squadron Leader L. G. S. Payne, M.C., A.F.C.

THE TURCO-SOVIET TREATY

AS a result of the visit paid by M. Litvinoff, Soviet Commissary for Foreign Affairs, to Angora in October last, a new Turco-Soviet Treaty of Friendship was signed by the Soviet Representative and Tewfik Rushdi Bey, the Turkish Minister for Foreign Affairs.

It renews on the same terms for a period of five years, the Treaty of Friendship and Neutrality signed on 17th December, 1929. The Naval Protocol (six months' notice to be given to one another of any contemplated increase in naval armaments in the Black Sea) forms part of the Treaty signed in 1929, and this agreement has now been extended to 7th March, 1936. It is believed that Litvinoff tried hard to secure the insertion of a clause whereby neither signatory could join the League of Nations without the other's consent, but the Turks refused to bind themselves in this way.

CORRESPONDENCE

TERRITORIAL BRIGADE STANDING ORDERS

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

Sir,—The article, "The Territorial Adjutant and his Work," which appeared in the August number of the JOURNAL, prompts the inquiry whether we, in the 149th (Northumberland) Infantry Brigade, T.A., are unique in our possession of Brigade Standing Orders. I ask this as the article in question, which covers in most comprehensive style the work of the T.A. adjutant, makes no reference to such standing orders and, although this omission does not necessarily rule out their existence, I have had my interest particularly aroused by the fact that whilst attending a recent course for T.A. adjutants at Aldershot this same question cropped up. I happened to mention to some of my fellow adjutants that our brigade was governed by such orders, but was unable to discover that any other brigade was equally fortunate. I use the word "fortunate" because we, as a brigade, have undoubtedly found our Standing Orders to be of the very greatest value, though they were only issued in September, 1930.

It is not my intention to discuss the scope of these orders in detail, including as they do orders published from time to time for General Routine, Annual Camp, Courses of Instruction at the Regimental Depot and an abstract of Administrative Instructions issued by the Territorial Army Association of the County. I do, however, wish to emphasise a few of the directions in which they have been of very real value.

(1) They serve, I think, to establish a definite feeling of regimental and brigade *esprit de corps*. All units of the brigade are working on the same lines within the brigade without feeling that their separate existence and individuality is in any way over-ridden or cramped.

(2) The liaison between the brigade and the regimental depot is intensified and, to the younger generation in particular, the fact is brought home that a very close community of interest exists between the two. The same applies to the home battalion of the regiment—when serving within the vicinity.

(3) The relationship between the T.A. Association and the units of the brigade administered by it is clearly established.

(4) The amount of clerical work falling to the lot of all who are responsible for the training and administration of the battalion is very sensibly reduced. It is but rarely that questions of routine, e.g., the organization of courses of instruction or orders for transport in camp, to take but two examples, arise which are not adequately catered for in our standing orders, and much labour saved thereby.

Many questions, which at one time entailed a somewhat lengthy written answer, are now replied to briefly as—"Vide Brigade Standing Order, Sec. x Para. y." Having served as a T.A. Adjutant both before and since the issue of our Brigade Standing Orders, I speak from experience.

I am, Sir,

Yours, etc.,

A. E. B. PLUMMER,

Captain and Adjutant,

5th Bn. The Northumberland Fusiliers (T.A.).

Walker-on-Tyne,

December, 1931.

THE PAY ENVELOPE

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR.—Captain Shaw, in his recent article on payment by means of pay envelopes, does not bring out one of the objections to the pay envelope system as demonstrated by him.

If the envelope is handed to the recipient closed, and he takes the envelope and its contents from the pay table, and then subsequently disputes the amount contained therein, the position is that of one man's word against another's, i.e., the man who placed the money in the envelope (or anyone who subsequently checked that amount), and the recipient.

In the Navy the system generally adopted is to place each man's money in an envelope beforehand, and the envelope is emptied on to the man's cap at the pay table, so that the amount received cannot be subsequently disputed, as the man is responsible for seeing that the amount handed to him agrees with that called out from the ledger at the time.

A system of payment from bulk money has been in operation at one Naval Establishment for many years. This entails an elaborate system of supervision at the pay table, and although this works efficiently, the system cannot be said to be as secure as the envelope system, as the payment cannot be proved beforehand.

In dockyards where a far greater number of men have to be paid, the money is placed in slots in boards containing usually about 100 slots each. For this method all the notes have to be folded so that they fit the slots. There is some idea of decentralizing the payment in dockyards and paying in the shops, instead of at the muster stations.

One of the objections to mass payments, as opposed to the Army system of decentralizing the payment to small units, is the impossibility of securing the attendance of all the men. This necessitates a preliminary payment to men who will be on duty or absent at the time of the main payment, and a subsequent payment of men who missed the muster for main payment.

I am, Sir,

Royal Naval Barracks,

Yours, etc.,

Chatham,

H. MURRAY,

November, 1931.

Paymaster Captain.

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR.—It may be of interest to readers of the article on "The Pay Envelope" to know that the modern methods of paying troops, advocated by the writer of the above article, were used in 1914 in "C" Company, 2nd Bn. London Rifle Brigade, by Major C. R. Bland (Mr. C. R. Bland of Lloyds), aided by his Company Quartermaster Sergeant, Mr. C. H. Bonner of the Midland Bank.

I write from personal experience as I took over command of this company in 1917. At that time a company at war strength in England had a pay roll of about 250, and the parade was over in a few minutes, whilst other companies were still waiting for their money, generally in the wind, mud and rain. The Regulations, no doubt, forbade such procedure, but the troops liked it, and the only persons on whom it entailed extra work were the company staff.

I am, Sir,

Yours, etc.,

Jerusalem,

G. C. KITCHING,

November, 1931.

Captain.

THE AEROPLANE AMBULANCE

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—In his recent Lecture on "The Army Medical Service in War," Major Wilson stated that air ambulances had been tried successfully as far back as 1923 by the French Army in Morocco.

May I take the liberty of reminding Major Wilson, and any others who may be interested, that a military aeroplane (a D.H.9) modified to carry one stretcher and an attendant, was used with considerable success by the "Z" Expedition in Somaliland in the autumn of 1919 and the spring of 1920.

The following quotation is an extract from "The Report on the Health of the Royal Air Force for the Year 1920," Air Publication 875, of 1921, and refers to the "Z" Expedition :—

"The Expedition is of medical interest in that :—

- (a) It was the first occasion on which medical arrangements were controlled entirely by the R.A.F. Medical Service. There was a R.A.F. Base Hospital at Berbera and miniature clearing stations and aid posts up country as required.
- (b) An aerial ambulance was used for the first time in desert warfare . . ."

I believe that a military aeroplane, similarly modified to carry one or more stretchers was used in Egypt during the year 1917, but as far as I can make out there was no official record made of its work.

I am, Sir,

Yours, etc.,

C. M. McALEERY.

LONDON,

November, 1931.

[Major Wilson's reference in his lecture was to aerial ambulance work on a *large scale*. His actual words were: "Aerial transport of casualties is no innovation—it has been tried successfully on a *large scale* as far back as . . ."—

EDITOR].

REGIMENTAL TITLES

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—In July, 1881, when regimental numbers were abolished every officer felt that our *esprit de corps*, so vital to the Army, might suffer. Everyone regretted the change. Even to-day officers still refer to their Regiments by their numbers with pride. Although we still find the numbers of our old regiments in the Army List in brackets we fear our numbers will not be restored. It would simplify matters and perhaps be much appreciated if Regimental numbers were given back to our Regiments. The first and second battalions would be regulars, the third and fourth battalions would be Territorials.

I am, Sir,

Yours, etc.,

HOVE,

November, 1931.

J. BROWNING, Lieut.-Colonel.

Ind. Army (Retd.).

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR,—The matter of Regimental Titles seems somewhat difficult of a satisfactory solution. All regiments are naturally anxious to retain not only their

particular designation, but in many cases their historical numbers. Possibly the following example may make the matter more clear :—

- (1) 71st, The Highland Light Infantry }
 (2) 74th, The Highland Light Infantry } (City of Glasgow Regiment),
 i.e., the battalion is shown by the prefix in brackets; the old number, together
 with present designation keeps up the historical association, and any particular
 honour, whether Territorial or historical, is shown in brackets following.

This would seem to make it possible in Regimental histories or in other documents or books to enable readers to see at a glance all the necessary data required even to identify any particular battalion.

I am, Sir.

Yours etc

BERWICK-ON-TWEED

T. T. MILNE-HOME, Captain.
(late Highland Light Infantry).

TO THE EDITOR OF THE R.U.S.I. JOURNAL.

SIR.—In reply to "Historicus" in the November Journal, I suggest the following procedure:—

Give a list, at the beginning, in three columns, of the units mentioned in the narrative, with (1) their present official titles, (2) their official titles at the time of the campaign, and (3) the abbreviated titles employed by the author. Such abbreviated titles should, in my opinion, be the old Regimental numbers as they existed in 1881; the sooner "a wide circle of readers" knows them the better, and certainly all soldiers should remember them. After the numbers I would add any special designation, e.g., 60th *Rifles*, 43rd *Light Infantry*, 87th *Fusiliers*, etc. The 2nd Batt. Q.O. Cameron Highlanders would need a special note, the number 79 having been abolished before this battalion was raised. In this case of the cavalry, "Hussars," "Lancers," etc., would follow the numbers as a matter of course.

Probably it would be necessary to consult old Army Lists; they are all in the Library of the R.U.S.I., of which I assume a military writer would be a member—as he certainly ought to be.

I am, Sir,

Yours, etc.,

GUILDFORD

ASTLEY TERRY, Colonel R.P.

LDFORD,
30th December 1931.

NAVY NOTES

GREAT BRITAIN THE BOARD OF ADMIRALTY.

In the reconstructed Cabinet after the General Election, appointments to which were announced on 5th November, 1931, Sir Austen Chamberlain was succeeded as First Lord of the Admiralty by Sir Bolton M. Eyres-Monsell, G.B.E., M.P. Sir Bolton served in the Royal Navy from 1894 to 1906, and again during the late War, commanding H.M.S. "Glowworm" in 1916-18 and H.M.S. "Roberts" in 1918-19. He was Civil Lord of the Admiralty in 1921-22 and Financial Secretary in 1922-23.

Appointments to the minor Government posts, announced a few days later, included those of Lord Stanley, M.C., M.P., to be Parliamentary and Financial Secretary to the Admiralty, in succession to Lord Stanhope; and of Captain D. Euan Wallace, M.C., M.P., to be Civil Lord, which post had remained unfilled since the beginning of September.

The first speech of Sir Bolton Eyres-Monsell as First Lord was made in the House of Commons on 23rd November, in a discussion on the motion for the adjournment. In the course of his remarks, he said:—"I do not wish to minimise in the slightest degree the seriousness of what took place at Invergordon, but in view of the very exaggerated rumours that are going about, spread by certain people interested, not only in this country but abroad, I say, with the utmost conviction of which I am capable, that there is no more loyal service in the world to-day than the Royal Navy. I know what a shock it was to the whole country, but I beg the House of Commons and the country to understand that if it was a shock to them it was a most profound tragedy to the Royal Navy. The Navy realises that to-day we no longer occupy that very high position in the hearts of the British public that for centuries we have held. But of this I am convinced: it is the most earnest desire of every single officer and man to regain that position as soon as we possibly can. I think it can be regained soon, and it will be regained all the more quickly if the House of Commons and the country will leave the Navy alone to deal with its own domestic difficulties."

FLAG APPOINTMENTS.

DISARMAMENT CONFERENCE.—On 28th January, the Admiralty announced that Vice-Admiral F. C. Dreyer, C.B., C.B.E., Deputy Chief of the Naval Staff, would relinquish his additional appointment as British Naval Representative on the Permanent Advisory Commission of the League of Nations on 1st February, and would be succeeded in that appointment by Vice-Admiral A. D. P. R. Pound, C.B. The appointment of the last-named officer for special duty at the Admiralty in connection with the Disarmament Conference, to date 1st December, 1931, was published in the last JOURNAL.

AMERICA AND WEST INDIES.—Rear-Admiral the Hon. Reginald A. R. Plunkett-Erle-Drax, C.B., D.S.O., is to be Commander-in-Chief, America and West

Indies Station, in succession to Vice-Admiral Sir Vernon H. S. Haggard, K.C.B., C.M.G., to date 2nd April.

EAST INDIES.—Rear-Admiral Martin E. Dunbar-Nasmith, V.C., C.B., is to be Commander-in-Chief, East Indies Station, in succession to Vice-Admiral Eric J. A. Fullerton, C.B., D.S.O., M.A., to date 29th April.

FIRST CRUISER SQUADRON.—Rear-Admiral George K. Chetwode, C.B., C.B.E., is to be Rear-Admiral Commanding the First Cruiser Squadron, Mediterranean Station, in succession to Rear-Admiral J. C. W. Henley, C.B., to date 19th March.

DIRECTOR OF MANNING.—Rear-Admiral Arthur L. Snagge is to be Director of the Manning Department, in succession to Rear-Admiral the Hon. R. A. R. Plunkett-Ernle-Erle-Drax, to date 2nd April.

S.N.O., YANGTZE.—Rear-Admiral R. A. S. Hill, C.B.E., succeeded Vice-Admiral C. K. MacLean, C.B., C.V.O., D.S.O., as Rear-Admiral and Senior Naval Officer, Yangtze, on 28th October, 1931.

ORDNANCE COMMITTEE.—Rear-Admiral B. W. M. Fairbairn, O.B.E., on 2nd January, succeeded Brigadier H. R. W. M. Smith, C.B.E., D.S.O., A.D.C., as Vice-President of the Ordnance Committee, and the latter officer on this date succeeded Vice-Admiral H. W. W. Hope, C.B., C.V.O., D.S.O., as President of the Committee.

PERSONNEL.

APPENDIX TO THE NAVY LIST.—In view of the revision of the pay of officers on 1st April and 1st October, the Appendix to the Navy List will in future be published with the December and June issues of the Navy List.

ABOLITION OF PROMOTION AFTER RETIREMENT.—An Order in Council was published in the *London Gazette* on 23rd October, 1931, withdrawing the privilege of advancement on or after retirement which has hitherto been open to officers of the Royal Navy and Royal Marines. The grant of steps in rank is discontinued, except as provided hereunder :—

(1) Commissioned officers from warrant rank of all categories, including schoolmasters and officers of the Royal Naval Shore Wireless and Shore Signal Services, to remain eligible under existing regulations for the rank or equivalent rank of Lieutenant on retirement.

(2) All officers, except Captains on the executive list of seniority of 1926 and below, whether on the active or the retired list at the date of these regulations, to retain any privilege of advancement applicable to their existing ranks.

(3) The changes proposed to be without prejudice to the powers conferred on the Admiralty by Orders in Council of 24th April, 1902, and 15th February, 1916, of advancing officers on the retired list in special cases, both in peace and war.

A Fleet Order explanatory of the above Order in Council was published on 6th November. It was recalled that in 1870 a comprehensive scheme of retirement was introduced, and provision was made for the grant of at least one step in rank on the retired list (subject to certain conditions) to all executive officers from Vice-Admiral to Lieutenant. Various regulations have since been introduced from time to time, mainly with the object of keeping non-executive officers in line with one another and with executive officers in this respect. Ultimately, the grant of steps in rank on or after retirement, which was originally introduced to preserve rights and privileges appertaining to service on the active list, developed

into a system of reward or recognition of long and satisfactory service. Although this system, which does not exist in the Army or Air Force, may be said to have fulfilled a useful purpose in this respect, it nevertheless involves certain anomalies, particularly when in time of war or emergency it becomes necessary to recall retired officers to active service. Moreover, the holding by a very large proportion of retired officers of ranks in which they have rendered no service is open to the objection that it cannot fail to lower the prestige attached to such ranks. The Board have, therefore, decided that with the exceptions mentioned the grant of steps in rank on or after retirement is undesirable in principle and should be discontinued.

RETIREMENT OF CAPTAINS.—It was also notified in Fleet Orders, dated 6th November, 1931, that the Board had decided that a Captain, Engineer Captain, Captain (E) or Surgeon Captain whom it is not intended to employ in the rank or corresponding rank of Rear-Admiral should not be promoted to that rank, but after reaching the top of the list should be retired in the rank of Captain when the next vacancy for Rear-Admiral occurs. Their retired pay will be calculated on the Rear-Admiral's scale, but subject to a maximum standard rate of £900 per annum, and no such officer will be eligible for retired pay at the Rear-Admiral's rate of half pay. Under this rule an officer will receive retired pay at the standard rate of £900 per annum, with a deduction of £22 per annum in respect of each complete year's service short of twenty-seven (maximum deduction five years). The new rules will apply to all engineer and medical officers promoted to the ranks of Engineer Captain or Captain (E) and Surgeon Captain after 7th October, 1931, and in order to equalise their operation as far as possible, the rules will apply to executive Captains of seniority 1926 and below.

PROMOTIONS FROM ABLE SEAMAN TO SUB-LIEUTENANT.—The first promotions from the rank of Able Seaman to Acting Sub-Lieutenant, in accordance with changes in the system of promotion from the lower deck (see the JOURNAL, August, 1931, page 664), were announced by the Admiralty on 14th November, 1931. Twelve ratings were accepted and appointed for training as from 1st December.

MECHANICAL TRAINING ESTABLISHMENTS.—The training of artificer apprentices was transferred from the "Fisgard" hulks at Portsmouth as from 1st January, 1932, to the new Mechanical Training Establishment at the R.N. Barracks, Chatham. The appointment of Inspecting Captain of Mechanical Training Establishments, of which the last holder was Captain Eric G. Robinson, V.C., O.B.E., was abolished from this date. The matters for which he had been responsible will be dealt with as follows:—Training of artificer apprentices,—the Engineer Captain in Command, M.T.E., Chatham; Acting leading stokers mechanical training courses, and the selection of mechanician candidates to undergo the mechanician course—the Commodores of the respective depots.

OFFICERS' STEWARD TITLES.—Their Lordships have decided to introduce new titles for officers' steward ratings to bring them into line with those of other branches. As from 1st October, 1931, the title of Boy Servant is altered to Boy Steward; Officers' Steward, 4th, 3rd, 2nd and 1st Class respectively, to Assistant Steward, Steward, Leading Steward and Petty Officer Steward; and Officers' Chief Steward to Chief Petty Officer Steward. The branch will continue to be known as the Officers' Steward Branch, and the distinguishing badge for these ratings (star with "O.S." in centre) will remain unchanged.

UNIFORM WHITE COAT.—It has been decided, with the King's approval, to postpone the abolition of the white coat until 1st January, 1935. No new white

coats are to be obtained, but until that date officers already in possession of white coats may continue to wear them on such occasions as, in the discretion of Commanders-in-Chief, are informal under No. 8b.

EGERTON MEMORIAL PRIZE.—The Commander Egerton Memorial Prize for 1931 has been awarded to Lieutenant R. A. Currie of H.M.S. "Excellent."

MATERIAL.

THE 1928 PROGRAMME.—The last vessel to be completed of the 1928 programme is the submarine "Rainbow," which was commissioned at Chatham Dockyard on 27th October, 1931, and finished for sea on 16th January, 1932. She will join the Fourth Flotilla in China to replace the lost "Poseidon."

No cruisers were built under the 1928 programme, the "Surrey" and "Northumberland" having been cancelled in January, 1930, by the late Government. The flotilla leader "Keith" and destroyers of the "Beagle" class were completed during 1931; and the four sloops of the "Hastings" type in 1930 and 1931.

THE 1929 PROGRAMME.—There is one cruiser completing under this programme, the "Leander," launched at Devonport on 24th September, 1931. The flotilla leader "Kempenfelt" and the destroyers "Cygnet," "Crescent," "Crusader" and "Comet," launched in September and October, 1931, are due to be completed between 25th March and 31st May next.

The three submarines of this programme have been put afloat since the last issue of the JOURNAL. The "Swordfish" was launched at Chatham Dockyard on 10th November, and the "Sturgeon" on 8th January. These are 640-ton vessels, and will carry a 3-in. gun each. The "Thames" was launched on 26th January, 1932, at the Vickers-Armstrongs works at Barrow. She will be of 1,760 tons, and be armed with a 4.7-in. gun. The completion of the four sloops of the "Shoreham" class under this programme was recorded last quarter.

THE 1930 PROGRAMME.—The three cruisers of the 1930 programme have now all been laid down; the "Achilles" at Birkenhead, the "Neptune" at Portsmouth Dockyard, and the "Orion" at Devonport. The flotilla leader "Duncan" was laid down on 3rd October, 1931, at Portsmouth, and the destroyers of the "Defender" class at various dates by contract. The submarines of this programme are the "Starfish" and "Seahorse," to be built at Chatham Dockyard, and the "Porpoise," ordered from Vickers-Armstrongs, Barrow, in June, 1931. The sloops of the programme were laid down during the autumn, the "Falmouth," "Milford" and "Weston-super-Mare" at Devonport Dockyard, and the "Dundee" at Chatham.

THE 1931 PROGRAMME.—No vessels of this programme have been started, nor have names been chosen for them.

EXERCISES AND CRUISES.

ATLANTIC FLEET.—As in 1931, a detachment of the Atlantic Fleet is visiting the West Indies as part of the Spring cruise. It includes H.M. Ships "Hood" and "Repulse" and the Second Cruiser Squadron—"Dorsetshire," "Norfolk," "Exeter" and "York." The ports in the itinerary are Barbados, Dominica, St. Kitts, Trinidad, Tobago, St. Vincent, Antigua, Grenada, St. Lucia, Montserrat and Nevis. The remainder of the fleet is making Gibraltar its base until 8th March, when it leaves for England—a fortnight earlier than usual. It is understood that no combined exercises with the Mediterranean Fleet will take place this year.

MEDITERRANEAN FLEET.—A winter cruise was made by this fleet from 7th to 29th January, with visits to Corfu, Navarino, and places in the Levant. The aircraft-carrier "Courageous," flying the flag of Rear-Admiral R. G. H. Henderson, Rear-Admiral, Aircraft Carriers, worked in company with the fleet during part of this cruise. At the end of February, the aircraft-carrier "Glorious," belonging to the Mediterranean Fleet, was expected to go to Gibraltar, meeting the "Courageous" and "Furious," when all three carriers would be in company for the first time since their reconstruction.

AMERICA AND WEST INDIES STATION.—The "Delhi," "Danae" and "Dragon" left Bermuda in January to begin their 1932 programme in the West Indies. The "Durban" and "Dauntless," after spending Christmas at the Falklands, proceeded to cruise up the South-West coast of South America. The sloop "Scarborough" continued to afford assistance at Belize after the damage by hurricane, and spent Christmas there.

CHINA STATION.—Cruisers on the China Station were mainly at Hong Kong and Shanghai during the quarter, except H.M.S. "Caradoc" which was at Hankow for a second winter.

EAST INDIES STATION.—The Fourth Cruiser Squadron was dispersed for Christmas; the "Effingham" was at Calcutta, the "Enterprise" at Trincomalee, and the "Emerald" in the Persian Gulf at Abadan. The two former ships cruised on the Indian coast during January, and the "Effingham" landed a party of bluejackets who marched through Chittagong on 5th January.

ORGANIZATION AND DISTRIBUTION.

FIRST BATTLE SQUADRON.—H.M.S. "Revenge," Captain J. A. G. Troup, after a long refit at Devonport, returned to Malta on 20th December, and resumed duty as flagship of the Vice-Admiral Commanding in place of the "Resolution." The "Royal Sovereign," Captain J. M. Pipon, C.M.G., O.B.E., M.V.O., arrived at Devonport on 7th December from the Mediterranean, and was ordered to refit at Portsmouth. She will remain in commission with a reduced crew, and recommission about June, 1932.

SECOND BATTLE SQUADRON.—H.M.S. "Nelson," Atlantic Fleet flagship, is ordered to recommission towards the end of the summer leave period. The "Rodney" did not take part in the Spring cruise, and was ordered to refit at Portsmouth, reducing to special complement before going there. On her return to Devonport she will give Easter leave and recommission.

BATTLE CRUISER SQUADRON.—H.M.S. "Renown" is refitting at Portsmouth, and should finish at the end of April. She will be recommissioned with the ship's company of the "Repulse" after the summer cruise. The "Repulse" will reduce to special complement at the end of the summer cruise pending being taken into dockyard hands for refit.

THIRD CRUISER SQUADRON.—The "Ceres," which was thoroughly refitted in 1930-31 and has since been in reserve at Devonport, will commission for service in the Third Cruiser Squadron about May next, relieving the "Calypso." The "Ceres" served in this Squadron from 1919 to 1929.

SIXTH CRUISER SQUADRON.—Following her visit to Tristan da Cunha in January, the "Carlisle" left Simonstown on 25th January for Devonport to recommission for further service on the Africa Station.

SURVEYING SHIPS.—H.M.S. "Challenger," built for special fishery research, but withdrawn from that service owing to the urgent need for economy, is to replace the "Iroquois" as surveying vessel on the China Station. The "Challenger" arrived at Portsmouth on 31st December from Chatham in order to facilitate the turn over between the vessels, the "Iroquois" having just returned from China.

MISCELLANEOUS.

SCAPA SALVAGE ABANDONED.—It was announced in November that Messrs. Cox and Danks had decided not to attempt the raising of the dozen or so remaining large vessels of the German Fleet sunk at Scapa. The first destroyer was salved on 1st August, 1924; twenty-four more were raised up to 30th April, 1926. Of the large ships, the "Moltke" was raised in June, 1927; the "Seydlitz" in November, 1928; the "Kaiser" in March, 1929; the "Bremse" in November, 1929; the "Hindenburg" in July, 1930; and the "Von der Tann" in December, 1930. The last to be raised was the "Prinzregent Luitpold," in July, 1931. Altogether, £450,000 was spent on the salvage work upon the thirty-two vessels in a little over seven years. The salvage of the remaining wrecks is not impossible but its cost would not be met by the prices ruling for scrap metal.

H.M.S. "EXCELLENT" CENTENARY.—An audited statement of the "Excellent" Centenary Fund, published with Fleet Orders on 30th October, showed that the total income of the Fund was £577 16s. 2d., of which £485 13s. 3d., was spent on the erection of a wrought iron gateway at the Stamshaw entrance to Whale Island as a permanent record of the Centenary.

LOSS OF THE "PETERSFIELD."

The minesweeper "Petersfield," Commander D. C. Lang, while on a passage from Shanghai to Foochow, with the Commander-in-Chief in China, Admiral Sir W. A. Howard Kelly, Lady Kelly and Miss Kelly, on board, ran ashore on the North side of Tung Yung Island, latitude 26 deg. 23 min. N., longitude 120 deg. 30 min. E. (that is, some sixty miles North-East of Foochow) about 7 p.m. on 11th November, 1931. Everyone on board was saved, but the ship became a total loss. Lieutenant G. A. H. Pratt, the navigating officer, was tried by court-martial on 26th November, and was sentenced to be severely reprimanded. Commander D. C. Lang was tried by court-martial on the 27th and 28th November, and he also was sentenced to be severely reprimanded.

LOSS OF "M.2."¹

Submarine "M.2" dived at about 10.30 a.m. on Tuesday, 26th January, off Portland, and no further communication was received from her. A search was made in the area in which she was last known to have been, but she was not found until 3rd February. Rear-Admiral C. J. C. Little, C.B., the Rear-Admiral, Submarines, proceeded to Portland to direct operations for the search. A memorial service was held over her on 5th February. Salvage operations are proceeding.

"M.2" was laid down in 1916, but not completed until after the War, when she was equipped with a 12-in. gun. This was removed in 1927, when a hangar

¹ A photograph of "M.2" equipped with her seaplane appeared in the R.U.S.I. JOURNAL of August, 1928.

was provided for the carriage of a small seaplane. She was the first under-water craft in the Royal Navy to be so equipped. More recently a catapult has been fitted for launching the seaplane.

The total number reported missing in "M.2" was 60. This included the following officers :—Lieutenant-Commander J. D. de M. Leathes, in command ; Lieutenant-Commander C. K. Arbuthnot, from H.M.S. "Adamant" ; Lieutenants C. R. Townsend (observer), H. C. Toppin (pilot), S. Macdonald and H. C. W. Head ; and Warrant Engineer W. A. Hayes. Two Leading Aircraftsmen R.A.F. were also lost.

DISMISSALS FOR INDISCIPLINE.

The Admiralty on 3rd November, 1931, issued the following statement :—"The First Lord stated in the House of Commons on 17th September that there would be no penalization in respect of the occurrences at Invergordon. No disciplinary action is therefore being taken in regard to them ; but the Board of Admiralty have received information that since the return of the Atlantic Fleet from Invergordon to the home ports in September last a few men who were serving in that fleet have continued conduct subversive of discipline. After careful investigation the Board have directed that in 24 cases the men shall be discharged from the Royal Navy, 'services no longer required'." All the men concerned were attached to Devonport.

ROYAL MARINES

NEW COLOURS.—H.R.H. Prince George, acting on behalf of the Prince of Wales who was indisposed, presented new Colours to the Portsmouth Division, Royal Marines, at Eastney Barracks on 3rd December. Heavy rain caused a postponement of the ceremony from noon to 1.30 p.m., but it was then possible to carry out the full ceremony on the parade ground. The guests included the First Lord of the Admiralty, Sir Bolton Eyres-Monsell ; and the Adjutant-General, R.M., Lieutenant-General R. V. T. Ford. The parade was under the command of Lieutenant-Colonel W. H. L. Tripp, and the Colours were dedicated by the Chaplain of the Fleet, Archdeacon W. K. Knight Adkin.

ROYAL NAVAL VOLUNTEER RESERVE

SUB-DIVISIONS CLOSED.—From 1st January, 1932, it was decided as a measure of national economy to terminate, temporarily, the voluntary training of the R.N.V.R., and to concentrate on the obligatory training. No alteration was made in the statutory strength of the corps. Further savings were made by the closing down of the Sub-Divisions at Manchester, Newport and Eastbourne, and by reducing the Sub-Divisions at Hastings from two to one.

ROYAL NAVAL FLYING CLUB

Particulars of this Club, the formation of which was reported in the last issue of the JOURNAL, can be obtained from the Hon. Secretary, Royal Naval Flying Club, Hanworth Park, Feltham, Middlesex.

Its primary object is to afford facilities to officers of the Royal Navy and Royal Marines interested in aviation.

DOMINION NAVIES

AUSTRALIA

CRUISE.—Commodore L. S. Holbrook, M.V.O., with the "Canberra" (broad pennant), "Australia," "Albatross" and "Tattoo," made a cruise during October and November. The ships left Sydney on 19th October, and visited Adelaide, Melbourne and other places.

OFFICERS' PAY.—An agreement has been reached that R.N. officers and men serving on loan in the R.A.N. will be paid by the Australian Government at R.A.N. rates, and that the Admiralty will then add to their emoluments such round sum as may be necessary to bring their emoluments (less Australian taxation thereon) up to approximately the amount (less United Kingdom income tax) which they would receive if serving in similar appointments in the Royal Navy.

R.N. officers serving in "exchange" appointments will be paid at R.N. rates and subject to United Kingdom income tax, but if employed in a shore appointment, will further be liable to Australian State tax and State unemployment tax.

CANADA

DESTROYER CRUISE.—The four Canadian destroyers left Halifax and Esquimalt respectively, in January for a cruise in the West Indies. The "Skeena" and "Vancouver" proceeded to Acajutla, Salvador, on 23rd January, owing to a revolt there. The ports of call of the "Saguenay" and "Skeena" were to include Havana.

FOREIGN NAVIES

ARGENTINA

NEW SUBMARINES.—Three submarines for the Argentine Navy are building in Italy by the Cantiere Navale Franco Tosi, Taranto, the "Santa Fe," "Salta," and "Santiago del Estero." They will be of 850 tons (1,080 tons submerged), with a speed of 17½ knots (nine knots submerged), and will carry one 4.7-in. gun and eight torpedo tubes. The "Santa Fe" was launched on 19th July, 1931.

CHILE

NEW MINISTER OF MARINE.—Vice-Admiral Enrique Spoerer was appointed Minister of Marine in the Cabinet formed on 15th November, 1921, with Don Marcial Mora as Prime Minister.

CHINA

NEW LIGHT CRUISER.—The small cruiser "Yat Sen" has been completed. She is of 1,650 tons, and carries one 6-in. and one 5.5-in. gun, with anti-aircraft and smaller weapons. Her speed is 20 knots.

FINLAND

TRAINING SHIP CRUISE.—The sailing training ship "Suomen Joutsen," in the course of a spring cruise, is to visit Plymouth from about 9th to 14th May, 1932.

FRANCE

1932 PROGRAMME.—The French Chamber, on 18th December, 1931, passed the construction programme for 1932, which sanctions the building of four cruisers of 7,800 tons, armed with eight 6-in. guns and with a speed of 32 knots; one large flotilla leader; one destroyer, one surveying vessel, and a river gunboat. The keels are to be laid between 1st April, 1932, and 31st March, 1933, and the cost of the programme will be spread over the next six years. The four cruisers will make a total of six of these medium vessels, as "La Galissonnière" and the "Jean de Vienne" were begun in 1931 at Brest and Lorient respectively. They follow the seven 10,000-ton 8-in. gun ships, from the "Duquesne" to the "Algérie," laid down at the rate of one ship each year from 1924 to 1930 inclusive.

The four cruisers will be named "Gloire," "Marseillaise," "Montcalm," and "Chateaurenaud"; the flotilla leader will be called the "Mogador," and the destroyer "Le Hardi."

DESIGNS FOR A NEW CAPITAL SHIP.—The Naval Commission of the Chamber has asked the Minister of Marine for details of the characteristics proposed for the new capital ship. Money was voted last June by the Chamber for design, drawings and for preliminary research work.

CHANGE OF FLAGSHIPS.—On relieving Rear-Admiral Descottes-Genon, whose flag was flown in the "Duquesne," Rear-Admiral Darlan hoisted his flag in the "Foch" in December last. The "Duquesne" has been taken in hand at Brest for repairs, and her place in the 1st Light Division has been taken by the "Tourville."

SUBMARINE LAUNCHED.—The submarine "Amazone" was launched on 28th December, 1931, at Rouen, where she had been building since 1928. She has a length of 209.28 feet and a beam of 19.62 feet; a surface speed of 13.7 knots and submerged of 9.2 knots; and is to carry one 3-in. A.A. gun and eight torpedo tubes. The "Amazone" is one of a class of 16 submarines laid down during the years 1927-1930 inclusive.

NEW FLOTILLA LEADERS.—Progress is being made with the flotilla leaders of the "Aigle" type, twelve in number, one of which, the "Gerfaut," made a speed of 42.787 knots, claimed as a world's record. The "Cassard" was launched at Nantes on 8th November; the "Maillié Brézé" at St. Nazaire on 9th November; the "Kersaint" at Caen on 14th November; and the "Tartu" at Nantes on 8th December, 1931. These vessels are of 2,441 tons, 75,000 horse-power, 37 knots speed, and armed with five 5.5-in., one 3-in., four smaller A.A. guns, and six or seven torpedo tubes. The crew includes ten officers and 210 men.

These vessels are virtually light cruisers, and if built by Great Britain would have to be classed as such under the London Treaty.

SUBMARINE CHASER LOST.—The submarine chaser No. 96, which left Bizerta, Tunis, for Bona, Algeria, on 11th December, in tow of the tug "Rhinoceros," was reported missing two days later. The tow line parted during the gale, and of the petty officer and twelve men in the C.M.B., four managed to reach the African coast. A fifth man who was with them died before help could be brought to him.

GERMANY

NEW CONSTRUCTION.—The vessels completing for the German Navy at the end of 1931 were :—“Deutschland,” 10,000-ton armoured ship, launched at Kiel on 19th May, 1931; “Bremse,” gunnery training ship, 1,230 tons, launched at Wilhelmshaven, 24th January, 1931; and the “Elbe” and “Weser,” fishery protection gunboats, also launched on 24th January, 1931, at Wilhelmshaven.

The cruiser “Leipzig” was commissioned on 8th October last. She differs slightly from other ships of the class, her triple turrets with nine 5.9-in. guns being all on the centre line.

CRUISER'S VOYAGE.—The cruiser “Karlsruhe,” in the course of a cruise which began in December, is expected to visit Dominica during the last ten days of March, 1932.

SALVAGE SHIP LOST.—The salvage ship “Teseo,” of 1,500 tons, was lost off the coast of Sardinia on 13th December during a gale, with the loss of 36 out of her complement of 148. The vessel had left La Maddalena bound for Civita Vecchia with a number of ratings as well as her regular crew. The cruiser “Trieste” went to her assistance from Spezia, but apparently did not reach her before she foundered.

NETHERLANDS

NEW CONSTRUCTION.—It is reported that the new cruiser is to be built from German designs, and tenders were due to be received by 13th December last.

FISHERY CRAFT WITHDRAWN.—According to information contained in Admiralty Fleet Orders, the Netherlands authorities have notified that the “Nautilus” and the “Vulcanus” have been withdrawn from the duty of exercising police supervision of the North Sea Fisheries.

The “Nautilus” is a new ship, completed at Rotterdam in 1930, of 800 tons, and can be equipped for minelaying. The “Vulcanus” is an ex-Grimsby steam trawler, of 410 tons, which also has gear for minelaying.

POLAND

NAVAL PROGRAMME.—The Polish navy already consists of two new destroyers and three submarines, and some older destroyers and auxiliary craft. It is hoped to bring the strength up to four destroyers and nine submarines, all of a modern type.

The total expenditure on naval forces last year was about £800,000 at par.

NEW SUBMARINE.—The submarine “Wilk” was commissioned at Cherbourg and taken over by the Polish Navy on 31st October last. She remains in French waters for training submarine crews and for experimental work.

RUSSIA

REAR-ADmirAL SCHREIBER.—Rear-Admiral Nicholas Schreiber, late of the Imperial Russian Navy, died in London in November, 1931, aged 58. He was a specialist in torpedoes and mines, and was chief torpedo and mining officer at Port Arthur during the war with Japan. During the late War, he was in charge of a mining section of the Russian Navy, and planned the minefields in the Baltic and Black Sea. He worked in close touch with the British Admiralty, and was concerned in the development of the “paravane.”

UNITED STATES

NEW NAVY BILL.—On 4th January, 1932, Mr. Vinson, Chairman of the House Naval Committee, laid before Congress a Bill providing for the construction of 120 new war vessels at a total cost of 616,250,000 dollars (£123,250,000 at par). The Bill asks for the immediate appropriation of 18,000,000 dollars, and during the next ten years annual sums ranging from 30,000,000 to 90,000,000 dollars would be required. All the vessels, except two aircraft carriers, are designed to replace over-age and obsolete ships.

It is understood, however, that President Hoover will oppose any increase to the U.S. Navy for the present, and unless Congress should override him there will be no new building programmes for 1933, and his order postponing six out of the eleven destroyers actually appropriated for will stand.

NEW CRUISER DESIGN.—The Washington Correspondent of the *New York Times* states that a radical change in the design of the 10,000-ton "Treaty cruisers" now being built has been adopted by the Navy Department, in order to make them into "miniature battleships" far stronger in defensive qualities and general fighting ability than the eight ships of the "Pensacola" and "Chester" class. A naval officer is quoted as saying that the new cruisers will be stronger than any others in the world, with the exception of the German "Deutschland."

REDUCED PERSONNEL.—In his annual report, Rear-Admiral F. B. Upham, Chief of the Bureau of Navigation, stated that the fiscal year ending 30th June, 1931, witnessed a reduction in the strength of the enlisted personnel, exclusive of those paid for by the veterans' bureau, from 84,500, the number Congress actually appropriated for, to 79,991, the number actually in the Navy on 30th June. The need for rigid economy in Governmental expenditures was undoubtedly responsible for this reduction, it is stated, "but it nevertheless was a severe blow to our Navy."

AVIATION PERSONNEL.—In the course of his annual report, Mr. C. F. Adams, Secretary of the Navy, states that the operation of naval forces under the new organization has been based on an enlisted strength of 79,700 men, of which total 11,740, or 14.7 per cent., are assigned to aviation duties or to vessels and shore stations connected solely with aviation. Since 1924, the officer personnel connected with aeronautics has increased from 422 to 1,132; and of enlisted men from 5,296 to 12,639. During the same period, the total enlisted personnel decreased from 86,000 to 79,991.

"INDIANAPOLIS" LAUNCHED.—The cruiser "Indianapolis," laid down by the New York Shipbuilding Company at Camden, New Jersey, in March, 1930, was launched on 14th November, 1931. The ship is one of the three laid down in 1930, and is a modified design of the "Pensacola" and "Chester" class.

NEW DESTROYERS.—The names of five great seamen of the United States—Farragut, Dewey, Hull, MacDonough and Worden—have been bestowed upon the five new destroyers ordered in 1931, to be built at the Boston Navy Yard, New York Navy Yard, Bath Iron Works, the Fore River Works, and the Puget Sound Navy Yard. They will be of 1,500 tons displacement, and cost about 4,700,000 dollars each.

FLEET CHANGES.—During the Spring, the cruiser "Memphis," completed in 1925, will relieve the old cruiser "Rochester" as flagship of the Special Service Squadron, Gulf of Mexico, when the latter will be placed out of commission. The

gunboats "Asheville" and "Sacramento" will leave this squadron and proceed to China, being relieved by the destroyers "Wickes" and "Philip."

The aircraft tender "Jason" will be relieved in the Asiatic Squadron about July next by the carrier "Langley," which will be relieved in the Scouting Group by the "Lexington" from the Battle Fleet.

The "rotation scheme," which provides for a proportion of ships being placed in reserve with a quartet crew of officers and men for periods of six months, will come into force in the Spring.

EXERCISES INTERRUPTED.—On 7th January, 1932, the U.S. Navy Department at Washington announced that the proposed naval manoeuvres in Hawaiian waters had been postponed in consequence of disorders which had occurred in Honolulu, following attacks on the wives of naval officers there. On 25th January, it was announced that the manoeuvres would proceed as arranged, but that no shore leave would be granted in Honolulu.

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from memory often a set of boxes of the "dark" which stand off
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ARMY NOTES

body used again is making a set showing down "dark" and
How many are in charge of men to work out a new system

HOME

THE ARMY COUNCIL

In the new National Government, formed after the recent general election, Hon. Captain the Viscount Hailsham, P.C., was appointed Secretary of State for War. He thus becomes President of the Army Council.

In addition, by an Order in Council, dated 17th December, the personnel of the Army Council has been restored to the number which existed before the formation of the National Government last September. Since that date the duties of the Under-Secretary of State for War had been merged in those of the Financial Secretary to the War Office and, from motives of economy, no Under-Secretary of State was appointed. On the formation of the new Government after the General Election Lord Stanhope was appointed Under-Secretary of State for War. A new Order in Council next appointed him to the Army Council. Mr. Duff Cooper, Financial Secretary to the War Office, who is the financial member of the Army Council, has now reverted to his own duties only, and Lord Stanhope, by virtue of his office, has taken over the responsibilities of Vice-President of the Army Council.

APPOINTMENTS AND PROMOTIONS.—H.M. the King has approved of the following appointments:—Colonel (temporary Brigadier) J. H. F. Lakin, C.S.I., Indian Army, as Aide-de-Camp to the King, in succession to Colonel C. A. Milward, C.B., C.I.E., C.B.E., D.S.O., Indian Army, promoted; Brigadier C. H. Brand, C.B., C.M.G., C.V.O., D.S.O., Australian Staff Corps, as Aide-de-Camp (Additional) to the King, in succession to Brigadier C. H. Foott, C.B., C.M.G., Australian Staff Corps, retired.

Major-General the Hon. Sir Francis R. Bingham, K.C.B., K.C.M.G., retired pay, to be Colonel Commandant, Royal Artillery, in succession to Major-General F. A. Bowles, C.B., deceased.

The following officers to be colonels Commandant, Royal Engineers:—Major-General Sir Reginald U. H. Buckland, K.C.M.G., C.B., retired pay, in succession to Major-General Sir Andrew M. Stuart, K.C.M.G., C.B.; Lieutenant-General J. R. E. Charles, C.B., C.M.G., D.S.O., Master-General of the Ordnance, in succession to Major-General Sir Elliott Wood, K.C.B., deceased; Major-General Sir Richard P. Lee, K.C.B., C.M.G., in succession to General Sir Reginald C. Hart, V.C., G.C.B., K.C.V.O., deceased; Major-General Sir Hubert A. A. Livingstone, K.C.M.G., C.B., in succession to General Sir Richard Harrison, G.C.B., C.M.G., deceased.

Major-General H. H. S. Knox, C.B., D.S.O., to be Colonel of the Northamptonshire Regiment, in succession to General Sir Havelock Hudson, G.C.B., K.C.I.E., retired pay.

Major-General Sir Archibald B. Ritchie, K.B.E., C.B., C.M.G., retired pay, to be Colonel of The Seaforth Highlanders (Ross-shire Buffs, The Duke of Albany's), in succession to Major-General Sir Colin J. Mackenzie, K.C.B., retired pay.

The following appointments have been announced :—Major-General A. Brough, C.M.G., C.B.E., D.S.O., to be Director of Mechanization, The War Office, in succession to Major-General S. C. Peck, C.B., D.S.O., with effect from 29th June next; Brigadier J. Baker, C.B.E., Royal Army Ordnance Corps, has been promoted to the rank of Major-General and appointed Director of Ordnance Services, the War Office, in succession to Major-General C. D. R. Watts, C.B., C.M.G.; Major-General R. C. Wilson, C.B., D.S.O., M.C., to be Commandant, Staff College, Quetta, in succession to Major-General E. T. Humphreys, C.B., C.M.G., D.S.O. General Sir C. Norman Macmullen, K.C.B., C.M.G., C.I.E., D.S.O., Indian Army, to be G.O.C.-in-Chief, Eastern Command, India, in succession to General Sir John S. M. Shea, G.C.B., K.C.M.G., D.S.O., Indian Army, with effect from March 31st; Major-General S. B. Pope, C.B., D.S.O., Indian Army, has succeeded Major-General H. E. Herdon, C.B., C.I.E., Indian Army, in command of the Waziristan District.

The following promotions have been made :—Major-General G. S. Clive, C.B., C.M.G., D.S.O., to be Lieutenant-General.

Colonel (temporary Brigadier) G. H. Addison, C.M.G., D.S.O.; Colonel (temporary Brigadier) J. K. Dick-Cunyngham, C.M.G., D.S.O., A.D.C. to the King; Colonel W. E. Wilson-Johnston, C.B., C.I.E., C.B.E., D.S.O., Indian Army; Colonel E. D. Giles, C.M.G., A.D.C. to the King, Indian Army, to be Major-Generals.

ORGANIZATION—ROYAL ARMY SERVICE CORPS.—The Royal Army Service Corps Training College has been reorganized into a Headquarters and Workshop Wing, and will in future be known as the Royal Army Service Corps Training Centre; the Workshop Wing will perform the duties hitherto carried out by "P" Company.

The Army School of Cookery remains as at present.

Approval has also been given for the formation of a Training Battalion, Royal Army Service Corps, which has absorbed and taken over the duties of "A", "Q" and "Y" Depot Companies, Royal Army Service Corps; the Officer Commanding, Training Battalion, Royal Army Service Corps, will be responsible to the Commandant, Royal Army Service Corps Training Centre, for depot training and administration.

The reorganization of certain mechanical transport units at home to form companies on a standard organization has been approved.

The organization and establishment of Numbers 6, 7, 8, 9 and 29 Companies and Number 35 Company (Mobile Repair Unit) have been modified to conform to the new organization.

The formation of four new standard companies to be numbered 24, 40, 41 and 42 has also been approved.

FORMATION OF A MECHANICAL TRANSPORT COMPANY.—Approval has been given for the formation of a mechanical transport company to be designated No. 38 Company, Royal Army Service Corps.

THE KING'S MEDAL, 1931.—The medal with clasp "1931" for the champion shot of the Home Forces has been won by Lieutenant E. J. King-Salter, The Rifle Brigade.

STANDARDS AND GUIDONS.—H.M. the King has approved that, in future, where there is no previous authorization, a badge, selected by the regiment, and approved by the Army Council, shall be placed in the centre of standards and guidons which are carried respectively by regiments of Dragoon Guards and Dragoons, and by Yeomanry regiments classified as such.

ISSUE OF RATIONS TO TROOPS IN WAZIRISTAN.—All British other ranks serving in Waziristan who draw consolidated rates of pay will draw free rations, or an allowance in lieu, when it is not practicable to supply rations in kind. They will not draw messing allowance in addition ; but the consolidated pay will not be regarded as including ration allowance.

FIRE AT SHORNCLIFFE CAMP.—The Officers' Mess of the 1st Battalion, The Sherwood Foresters, at Risborough Barracks, Shorncliffe Camp, was destroyed by fire on 3rd January, with damage estimated at £6,000. The silver in daily use was destroyed as well as a few relics, which included a snuff-box, dating from 1827, made from the wood of the tree under which Major-General Sir Thomas Picton was killed at Waterloo. The King's and Regimental Colours and many trophies and relics, however, were safely brought out of the blazing building.

The cause of the fire is not known, but is believed to have been due to a fault in an electric light circuit.

MECHANIZATION TEST IN THE SUDAN.—On 18th January a test of the capacity of mechanically propelled vehicles was begun in Egypt. A convoy of four vehicles of different makes, under the command of Captain D. K. Paris, M.C., R.A., of the Mechanical Warfare Experimental Establishment, Farnborough, set out on the following itinerary : the valley of the Nile from Cairo to Wadi Halfa, whence it will cross the desert to Abu Hamed ; it will then once more follow the Nile to Khartum, at which place it will branch off to Kosti along the White Nile ; thence it will proceed west to El Obeid and south to Wau and Juba ; it will then return along the White Nile to Malakal, and north-eastward from that point to Singa on the Blue Nile, continuing along the borders of Eritrea to Port Sudan ; the remainder of the journey will be made along the Red Sea and Gulf of Suez.

The test will occupy 101 days, or longer if necessary. Six days full supplies are to be carried throughout the test.

PAY OF ARMY RESERVISTS AND SUPPLEMENTARY RESERVISTS.—Complaints have appeared in the Press in regard to the reduction of the pay of Army Reservists and of the quarterly bounties of Supplementary Reservists. The gist of such complaints appears to be that the reductions have been made without prior warning having been given to the Reservists. The War Office desires to point out that the reductions in the pay of the Army Reserve and the quarterly bounties of Supplementary Reservists were notified in Army Orders published on 11th September, 1931, at the same time that other economy reductions in the pay of officers and other ranks of the Army were announced. These Army Orders, with others, were circulated to the Press and much publicity was given to the subject of the reductions in the pay of the Army generally. Questions regarding reservists' pay have also been asked in Parliament and replies were given thereto by the Financial Secretary of the War Office on 17th November last.

TERRITORIAL ARMY

CAMP EQUIPMENT.—In *The Times* for 1st January there was published a letter issued by the War Office to all County Associations. It was stated therein that :—

For units under canvas a charge of 2s. 6d. a camper for the first day and night and 6d. a night thereafter in respect of handling, wear and tear of camp equipment will be payable from the Territorial Army Training grant. A similar charge will be made in respect of equipment issued when training is carried out at unfurnished hutted camps.

In order to dispel the impression that this measure might impose further hardships on the County Associations in their endeavours to provide some form of training during 1932, in the absence of the usual official camps, the War Office issued a further statement, as follows :—

The War Office think it is desirable to remove the misapprehension which appears to exist with regard to the decision recently communicated to Territorial Army Associations that where voluntary camps under canvas are held by Territorial Army units during 1932 a charge shall be made in respect of the use of Regular Army tentage and equipment which may be lent for such voluntary camps. This charge, which amounts to 2s. 6d. a head for the first day and night and 6d. a night thereafter, is in respect of the handling, wear and tear of the tentage and equipment, and does not fall either upon units themselves or upon Territorial Army Associations. It is effected by an abatement of the grant made to General Officers Commanding in respect of training and instruction outside the usual camp period. This grant has been substantially increased from £144,500 to £190,000 as a set-off to the suspension of annual training in camp for the year 1932, and the handling and depreciation of camp equipment is a proper charge against it.

CHANGE IN DESIGNATION.—H.M. the King has approved of the designation of the 56th (1st London) Divisional Signals, Royal Corps of Signals, Territorial Army, being altered to 56th (1st London) Divisional Signals (City of London Signals), Royal Corps of Signals, Territorial Army.

SUMMER CAMP ATTENDANCE.—It is announced that the *Daily Telegraph* Challenge Cup, awarded annually for the best attendance at Camp, has been won this year by the 5th Battalion, The Sherwood Foresters, with an attendance of 99.50 per cent. The runners-up were the 10th Battalion, The Manchester Regiment, with an attendance of 97.85 per cent. Other units which reached a percentage of over 90 were the following :—

Unit.	Percentage Attendance
The Nottinghamshire Yeomanry (Sherwood Rangers) ..	96.96
6th (Lanarkshire) Battalion, The Cameronians ..	96.36
7th Battalion, The Durham Light Infantry ..	95.36
6th Battalion, The Sherwood Foresters ..	94.70
61st (North Midland) Field Brigade, Royal Artillery ..	94.33
55th (Northumbrian) Medium Brigade, Royal Artillery ..	94.32
8th Battalion, The Durham Light Infantry ..	93.87
The Northumberland Hussars ..	93.24
The Tynemouth Heavy Brigade, Royal Artillery ..	92.58
8th Battalion, The Sherwood Foresters ..	91.72
5th Battalion, The North Staffordshire Regiment ..	90.56
The Yorkshire Dragoons (Queen's Own) ..	90.20

CADET CORPS.—The following correspondence took place between the Army Council and the British National Cadet Association and was also made known in the House of Commons.

26th November, 1931.

SIR.—I am commanded by the Army Council to inform you that they have had under review the policy regarding Cadet Corps.

The Council have decided to reverse the decision which was taken in March, 1930, to withdraw official recognition of the Cadet Force as from 31st October,

1930, and a memorandum is enclosed setting out the general conditions on which they are prepared to restore such recognition.

I am to enquire whether your Association are desirous of the renewal of recognition on the conditions stated.

I am to ask that you will be good enough to furnish a very early reply.

I am, Sir,

Your obedient Servant,

(Sd.) H. J. CREEDY,

Lieut-Gen. Sir H. S. Jeudwine, K.C.B., K.B.E.,

The British National Cadet Association,

21 Budge Row, Cannon Street, E.C.

Conditions Governing Official Recognition of Cadet Corps.

(1) The Cadet movement to be officially recognised as it was prior to 31st October, 1930, but the payment of grants from public funds to Cadet units not to be resumed.

(2) The British National Cadet Association to be the recognised authority for the organization and administration of Cadet Corps. Official recognition to be restricted to units affiliated to that Association.

(3) Annual inspections of recognised units by senior Regular or Territorial Army officers to be resumed subject, as in the past, to no expense being incurred from public funds.

(4) The Council of County Territorial Associations and Territorial Army Associations not to be connected in any way with the administration, etc., of Cadet units.

Territorial Army Associations not to be permitted to spend their public funds on them, but to have authority to sanction their affiliation to Territorial Army units where desired. Applications for such affiliation to be made through and endorsed by the British National Cadet Association.

(5) The publication of the official Cadet List by the War Office not to be resumed.

(6) Camp equipment for a maximum of 25,000 cadets for a fortnight to be made available each year on the same terms as to juvenile organizations at present.

(7) When the exigencies of the Service permit, recognised Cadet units to be permitted to make use of Government buildings, ranges and War Department lands, as well as of drill halls, etc., leased or rented by Territorial Army Associations, without charge, provided that any expense is refunded which would not be incurred if the Cadet unit did not use the hall, etc.

(8) The British National Cadet Association to be responsible for the various Cadet competitions.

Special Provisions relating to Cadet Units affiliated to Territorial Army Units.

(9) Permission to wear military uniform, etc., to be granted.

(10) To have prior claim to the loan of camp equipment.

(11) Cadets of such units to be eligible to undergo examination for Certificates "A", Officers Training Corps.

(12) Officers of such units to be granted Cadet commissions, to be issued on behalf of the King by Lords Lieutenant of Counties. Such officers to be eligible, subject to the same conditions as in the past, for commissions in the Territorial Army Reserve.

(13) Exemption from Gun Licence Duty, and free firearm certificates under the Firearms Act, 1920.

(14) To the extent to which stocks admit, Carbines D.P. and Rifles D.P. to be issued free, units being required to pay the cost of carriage from Ordnance Depots. In the case of units which may recently have purchased such arms from the War Department, a refund to be made.

Neither serviceable rifles nor bayonets to be issued.

No free issue of cleaning materials.

No official record of arms to be maintained or periodical inspections of arms to be made.

(15) Permission to be given to purchase such accoutrements as the War Department may have for disposal from time to time; also War Department material, etc., for uniform.

British National Cadet Association.

21, Budge Row,
Cannon Street, E.C.4.

27th November, 1931.

SIR.—I have the honour to acknowledge on behalf of the British National Cadet Association, of which I am President, the receipt of your letter of the 26th November, addressed to Lieutenant-General Sir Hugh Jeudwine, the Chairman.

In reply, I have to inform you that the Association readily accepts the offer of renewal of recognition to Cadet Corps under the conditions set out in the annexure to that letter.

I am confident that I am expressing the sentiments of the Association in tendering to the Army Council their very sincere gratitude for the trust reposed in them. It will be the aim of my Association to carry out the duties allotted to them, in such a manner as to warrant the decision which the Army Council has arrived at.

I have the honour to be, Sir,
Your obedient Servant,
(Signed) ALLENBY, President.

DOMINION FORCES

THE KING'S MEDAL FOR 1931.—The clasp "1931" for the champion shots of the undermentioned military forces has been won by the following:—

- (a) Military Forces of Southern Rhodesia.—Sergeant N. A. Fereday, Salisbury Government Rifle Club. The medal was won by this N.C.O. in 1930.
- (b) Military Forces of the Union of South Africa.—Mr. G. W. Church, Kimberley Rifle Club. The medal was won by this competitor in 1924.
- (c) Military Forces of Australia.—Warrant Officer Class I, J. D. Shearim, Australian Instructional Corps. The medal was won by this warrant officer in 1927 and the clasp in 1929.
- (d) Military Forces of Canada.—Lieutenant D. T. Burke, The Governor-General's Foot Guards. The medal was won by this officer in 1925 and the clasp in 1927, 1929 and 1930.

REGIMENTAL ALLIANCES.—H.M. the King has approved of the following regimental alliances:—

- King's Canadian Hussars, Non-Permanent Active Militia of Canada, to the 3rd The King's Own Hussars.
- 4th Hussars, Non-Permanent Active Militia of Canada, to the 4th Queen's Own Hussars.
- 15th Light Horse Regiment, Australian Military Forces, to the 15th/19th Hussars.
- 17th Field Battery, Canadian Artillery, Non-Permanent Active Militia of Canada, to the 17th Field Battery, Royal Artillery.
- 60th Field Battery, Canadian Artillery, Non-Permanent Active Militia of Canada, to the 60th Field Battery, Royal Artillery.
- The Weyburn Regiment, Non-Permanent Active Militia of Canada to The Royal Warwickshire Regiment.
- 58th Battalion of the Australian Military Forces to The Northamptonshire Regiment.
- Australian Army Chaplains' Department to the Royal Army Chaplains' Department.

INDIAN ARMY

DISBANDMENT.—The 3rd Battalion, 19th Hyderabad Regiment, has been disbanded on the grounds of economy. This unit was raised in 1794.

TROUBLES IN BURMA.—There has been no material change in the situation in Burma during the autumn, and no improvement in the number of cases of violent crimes has occurred. The villagers, however, are now showing a greater determination to defend themselves against rebels and dacoits. Two notable instances are reported from the Pegu and Insein Districts. In the latter case, armed villagers successfully repulsed a band of rebels, killing 7 and wounding 8; 16 rebels and 2 guns being captured later.

San Pe, the Thayetmyo rebel leader, was captured during September, and practically the whole Minde gang of rebels, numbering about 100, surrendered, with over 30 guns and many other weapons. Po Mu, another rebel leader, has died of wounds, and Saya San, the original leader of the Burma rebellion, has been sentenced to death. Military police raided another rebel camp in the Thayetmyo District, inflicted a number of casualties, and destroyed the camp and a quantity of stores. On the other hand, gangs of rebels and criminals have again been active in the Prome District. They committed a dacoity in the Tharawaddy District, and, on 24th September, attacked Padigon railway station and town in the Prome District. They were driven off by a handful of armed Civil Police, who killed 6 of them, including the leaders, but some loot was collected and removed.

Surrenders numbered over 5,000, of which nearly 3,000 are in the Prome District.

NOTICE

LONDON DISTRICT SCHOOL OF INSTRUCTION.

Much has been written during the last few years about the help which the Regular Army has given, and can still give, to the Territorial Army, both in the matter of instruction and of liaison. From the existing records, it appears that

instruction by the Regular Army was given in London to the Militia as far back as 1870, when courses were started at Wellington Barracks. These courses seem to have been mainly devoted to drill and the art of skirmishing, and the attendance was approximately twenty officers to a course. The Chief Instructor and Commandant on the first course was Colonel the Hon. R. Monck, Coldstream Guards, and the duties of Adjutant were carried out by Captain G. Villiers, Grenadier Guards.

As time went on, the courses grew in number, and were so much appreciated that N.C.O.s of the Brigade of Guards were specially detailed as instructors in drill. The Commandant and Adjutant of the School of Instruction held their appointments for periods varying from one to seven years, and it is interesting to find that in 1884 the late General Sir Francis Lloyd was Adjutant, and in 1900 General the Earl of Cavan held the appointment of Commandant.

During the period of the Great War, instruction given to officers of the Territorial Army and to Dominion officers was chiefly in drill and in map reading, and the number of officers who passed through the School at this time amounted to many thousands. The instructors were increased to deal with the numbers and were drawn from four Regiments of the Brigade of Guards, for the Welsh Guards did not find a Sergeant at this time. The Commandant during the period of the War was Major D. E. Tryon, Grenadier Guards, the present Minister of Pensions, and the establishment was known officially by this time as the London District School of Instruction.

After the War, when the majority of Territorial officers were demobilized, the attendance fell, and the School took on the instruction of something like thirty officers on probation for the Brigade of Guards. In the year 1920, the Territorial officers within the London District found their way to the School once more, and N.C.O.s from the London Regiments attended courses also. Drill and tactics were the subjects taught. Fourteen officers with thirty-three N.C.O.s attended courses during the year.

After the War, the School of Instruction moved back to Wellington Barracks, and the Staff was settled at an establishment of a Commandant, an Adjutant, a Company-Sergeant-Major, with acting rank of Regimental-Sergeant-Major, and three Sergeants as instructors; the Regiments of Foot Guards found one Sergeant each, the Company-Sergeant-Major being selected from each Regiment in rotation. A clerical Staff for the Orderly Room was allowed to assist in the work entailed by the growth of attendances. In 1926, a machine gun course was started, and the attendance at the course both of officers and N.C.O.s showed that it was appreciated and needed. A Barr and Stroud range-finding course and a signalling course were also started about this time, together with a course for the officers and N.C.O.s of the Artillery Brigades of the two London Divisions; but the Artillery course was superseded by courses arranged by the Instructor of Gunnery, Eastern Command. From this time, too, all courses, both for Artillery and Infantry, included not only the two London Territorial Divisions, but Territorial units in the Eastern Command as well. In addition, it was found that many officers and N.C.O.s from the junior divisions of the Officers' Training Corps were asking for instruction during the holiday period, and a course was held for twenty-three officers and forty-seven N.C.O.s.

The School moved to Hyde Park Barracks when the Barracks were vacated by the Household Cavalry, and the barrack rooms provide excellent instructional rooms for lectures and mutual instruction. Drill is carried out on the square,

with the help of guardsmen detailed from the battalions in the London District. The officers and N.C.O.s of the Territorial Army attending courses receive one day's pay according to their rank, for every six hours' attendance.

In 1930-31, no fewer than 1,232 students passed through the School, attending 32 courses in subjects such as drill, weapon training, tactics, machine gunnery, signalling, range finding, artillery gunnery, and courses of preparation for promotion examinations. Among the courses, which run during ten months of the year from October to July, are war games between battalions, when not only is the tactical side handled on duplicate sand tables, but prisoners and nervous subordinates may have to be dealt with, and an important higher commander answered on the field telephone.

There is an Officers Mess where all officers may get a meal or refreshment, and student N.C.O.s have the N.C.O.s Mess in Hyde Park Barracks at their disposal. Every course is photographed, and the School albums form a continuous record of its work for the last sixty years.

It would be a great asset to the School if officers from different parts of the Empire, on leave in England, attended. The possibilities of Cadets from the junior division of the O.T.C. being given a wider interest in the Regular Army through attendance at a course in London is also kept in mind.

There can be no doubt that the expansion of the School is due entirely to the enterprise of the officers and N.C.O.s of the Territorial Army. It must not be forgotten that most of these officers and N.C.O.s are working at their civilian occupations during the day, and come to the School at 7 p.m. to start working again at military subjects until 9.30 p.m. It is because the Territorial Divisions have not only attended courses in constantly increasing numbers, but have followed them with remarkable keenness and a true sense of discipline, that the London District School of Instruction has grown to its present size.

FOREIGN

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ALBANIA

REORGANIZATION OF THE ARMED FORCES.—A decree law dated 1st June, 1931, introduces a complete reorganization of the armed forces of Albania. The command of national defence from 1st July, 1931, assumes complete responsibility for the army, navy, air force and pre-military training.

The army is to consist of :—2 divisions ; 6 mixed groups.

The detailed organization has not been settled, but a number of units have been authorized including 6 active and 12 cadre battalions of infantry, 15 active and 12 cadre batteries of artillery, together with technical and administrative units. The total establishment of officers is laid down at 872, which number is to include officers for the staff and administrative services. The total number of effectives has not yet been disclosed, but it is expected to be between 8,000-9,000. The system of pre-military training to be adopted follows closely that of Italy.

All boys when 16 years of age are called upon to serve in the Pre-Military Militia, until they join the army. In case of exemption from military service they are to continue to serve in the militia until they are 21 years of age. The

Pre-Military Militia is organized in 10 battalions, 1 in each Prefecture. Each battalion is divided into 2 or more rifle companies. Later on a machine-gun company may be formed and attached to each battalion.

Enti-Kombetare.—The Enti-Kombetare, or League of Albanian Youth, was instituted by a decree-law dated 1st June, 1931. It is modelled on the Balilla organization of Italy. The aims of the Enti-Kombetare are to direct, spread, control and support the moral, patriotic and physical education of both sexes in all the schools of the country. It is under the direct ægis of the Ministry of Education, and has wide powers, including the right to abolish societies working in the various fields in which it is interested, who do not deserve its support. It may also recommend reforms to the constitutions of establishments which control studentships and scholarships in order to ensure their distribution on a basis which favours boys whose merits are indicated by the Enti-Kombetare.

The Enti-Kombetare is autonomous and has its own budget. It receives grants from the Ministry of Education and 4 per cent. of the annual revenue of all Municipalities and Communes.

BELGIUM

GAS IN THE MEUSE VALLEY.—The committee appointed to enquire into the source of the lethal gas which did such damage in the valley of the Meuse during December, 1930, has presented its report. The calamity is attributed to the presence of SO₂ in the fog which hung for several days over the afflicted region. This product, ejected in large quantities into the atmosphere by the numerous factory chimneys in the valley, was transformed by contact with the air into sulphuric acid. That this phenomenon should have had the effect that it did was due to an exceptional combination of circumstances; absence of wind during several days, a low temperature, together with the existence of a thick fog, which had a natural tendency to accumulate in a valley forming a basin surrounded by hills.

FRANCE

MILITARY BUDGET INCREASE.—The French military estimates for the period 1st April—31st December, 1932, are now under consideration. These estimates cover only nine months of the year, as it is proposed to return to the old financial year, 1st January—31st December. *The Times*, on 5th January, made the following comments of these estimates:—

"The estimated expenditure, as submitted to the Budget Committee of the Ministry, amounts to 40,935,000,000f. (roughly £327,400,000 at par). Of this 10,112,000,000f., or roughly a quarter, represents the cost of the military, naval, and air services at home and in the oversea possessions. The total amount allotted to these services in the Estimates for the 12 months from April 1, 1931, to March 31, 1932, was 12,025,000,000f., so that the proposed expenditure on these services for the nine months is proportionately much higher. The estimate for pensions during the nine months is 1,845,000,000f. For the previous financial year it was 1,987,000,000f., so there is another proportionate increase. The steady growth of expenditure under this head as the result of the tendency to vote new pensions to wider classes and to augment the existing scales has been strongly criticised. During the financial year 1930-1, which has just closed with a deficit of more than 2,000,000,000f., the annuity debt for pensions was increased by new votes amounting to 737,000,000f., and now stands at 10,069,000,000f."

"The Estimates contain a final statement on the liquidation of the American Army stocks taken over by the French Government. The account shows that sales realised only 3,168,000,000f. The purchase price was 10,397,000,000f."

ITALY

OPERATIONS IN CYRENAICA.—On 11th September the Italians won an important success, when a cavalry squadron captured the redoubtable Senussi chief, Omar el Mukhtar. A few days later he was tried for numerous acts of armed rebellion, and executed at Benghazi in the presence of 20,000 Arabs.

This old chief had for many years been a thorn in the side of the Italians, and his activities had seriously interfered with their scheme of colonization. In 1929 he surrendered to Marshal Badoglio but broke faith and was soon again in arms against the "infidel." His bands were adepts at guerilla warfare in difficult country, and their courage and mobility made them formidable opponents to small columns whilst larger forces could seldom bring them to battle.

His capture was the natural consequence of the drastic measures adopted by the Vice-Governor of Cyrenaica, General Graziani, during the past year. The tribesmen of the hill country and neighbouring desert have been compelled to settle near the coast where they are under the eyes of the Italian garrison. The freedom of movement of the insurgents had then been gradually circumscribed by lines of blockhouses, while severe penalties have been inflicted on anyone furnishing them with assistance either in arms or food. As a result of these measures Omar el Mukhtar was forced to raid the open country for supplies and it was in the course of one of these raids that he fell into the hands of the Italians,

MOROCCO

FRENCH ZONE.—OPERATIONS.—(a) During the summer and autumn of 1931, in the Tadla region the troops on the Oued El Abid effected a junction with those in the valley of the Assif Ourine in the Moulouya area. Tounfit was occupied after having been heavily bombed by aircraft. In three months 800 families have submitted.

On the Moroccan-Algerian border, the Saharan routes are policed and organized ready for the occupation of the Tafilet, as soon as orders are received to carry this out.

(b) In October, a methodical advance was undertaken so as to close in the dissident area on the south, troops based on Marrakech advancing eastwards from Imiter to join hands with those based on Bou Denib advancing westwards up the Ferkla Valley. These operations being carried out under the supervision of the Commander-in-Chief, General Hure.

On 14th November, Foum-el-Souk, 15 kilometres East of Imiter, was occupied without opposition.

(c) On 21st October, a djich which had pillaged camps of the *soumis* south of the Moroccan-Algerian border was engaged and dispersed by a mixed company of Moroccans and Algerians. The casualties on the French side were one officer wounded, two natives killed and six wounded.

efficiency shown in the flight and navigation work of the Royal Air Force, and the desire to render increased service to the Empire, these changes will be made. It is proposed to expand the Royal Air Force by additional formations in certain areas and to make general but no fundamental alterations in the organisation of the Royal Air Force.

AIR NOTES

ROYAL AIR FORCE

AIR MINISTRY.

When the Cabinet was reconstructed after the General Election, The Most Hon. The Marquess of Londonderry, K.G., M.V.O., was appointed Secretary of State for Air in succession to The Right Hon. Lord Amulree, P.C., G.B.E., K.C., and The Right Hon. Sir Philip A. G. D. Sassoon, Bart., G.B.E., C.M.G., M.P., was re-appointed Under-Secretary of State for Air.

APPOINTMENTS.

AIR COMMODORES.—C. T. Maclean, D.S.O., M.C., to Air Ministry as Director of Postings to date 21st December, 1931; C. E. H. Rathborne, D.S.O., now Senior Air Staff Officer, Inland Area, to be Air Officer Commanding R.A.F., Mediterranean, vice Air Commodore J. L. Forbes, O.B.E., to date 1st February, 1932.

PROMOTIONS.

GENERAL DUTIES BRANCH.—The following promotions have been made with effect from 1st January, 1932:—Air Vice-Marshal Sir John Miles Steel, K.B.E., C.B., C.M.G., to be Air Marshal.

Air Commodore N. D. K. MacEwen, C.M.G., D.S.O., to be Air Vice-Marshal.

Group Captains N. J. Gill, C.B.E., M.C., J. B. Bowen, O.B.E., to be Air Commodores.

Wing Commanders W. S. Douglas, M.C., D.F.C., P. C. Maltby, D.S.O., A.F.C., D. C. S. Evill, D.S.C., A.F.C., T. L. Leigh-Mallory, D.S.O., R. H. Peck, O.B.E., to be Group Captains.

RETIREMENT.

Air Vice-Marshal F. R. Scarlett, C.B., D.S.O., retired at his own request on the 31st December, 1931.

ADMINISTRATION.

MOVE OF COASTAL AREA HEADQUARTERS.—The headquarters of the Coastal Area, Royal Air Force, was moved from Tavistock Place, London, to Lee-on-Solent, Hants, on 18th January. From this date No. 10 Group, under which the Coastal Area units in the Portsmouth District have hitherto been placed, ceased to exist, and all units in the Coastal Area are now administered direct by Headquarters, Coastal Area.

The Coastal Area Command was formed on the 15th September, 1919, and to-day comprises all units serving at the Stations of Calshot, Lee-on-Solent, Gosport, Mount Batten, Pembroke Dock, Felixstowe, Donibristle, Leuchars and Novar. The Air Officer Commanding, Coastal Area, is also the administrative

authority for Headquarters units and Fleet Air Arm flights in aircraft carriers, and in H.M. ships equipped with catapults, in Home Waters in respect of such matters as are the responsibility of the Royal Air Force.

TRANSFER OF UNITS.—The administrations of the following units have been transferred from Headquarters, Coastal Area, to Headquarters, No. 1 Air Defence Group, with effect from 18th January, 1932:—

The Central Medical Establishment.

The Inspector of Recruiting.

The R.A.F. Recruiting Depot.

BOMBER SQUADRONS.—The title of No. 500 Squadron was changed to "No. 500 (County of Kent) Bomber Squadron."

No. 18 (Bomber) Squadron was formed at Upper Heyford on 20th October, 1931. The Squadron is equipped with Hawker Hart aircraft.

No. 57 (Bomber) Squadron was formed at Netheravon on 20th October, 1931. The Squadron is equipped with Hawker Hart aircraft.

FLYING BOAT SQUADRON.—It has been decided that No. 210 (Flying Boat) Squadron will remain permanently at Pembroke Dock.

ARMAMENT TRAINING.—With effect from 1st January, 1932, the Armament and Gunnery School, Eastchurch, and the Royal Air Force Practice Camps at Catfoss, North Coates Fifties and Sutton Bridge were re-organized in order to develop the armament training of the Royal Air Force. The designation of the Armament and Gunnery School has been altered to Air Armament School and the titles of the Royal Air Force Practice Camps are now:—

No. 1 Armament Training Camp, Catfoss.

No. 2 " " " North Coates Fifties.

No. 3 " " " Sutton Bridge.

SCHOOL OF BALLOON TRAINING.—The designation of the School of Balloon Training has been altered to "Royal Air Force Balloon Centre" with effect from 3rd November, 1931.

PERSONNEL

HONORARY SURGEON TO THE KING.—With the approval of H.M. the King, Air Vice-Marshal John McIntyre, M.C., M.B., B.Ch., has been appointed an Honorary Surgeon to His Majesty, vice Group Captain Henry Cooper, D.S.O., M.R.C.S., L.R.C.P., who vacates the appointment on retirement from the Royal Air Force.

HONORARY CHAPLAIN TO THE KING.—With the approval of H.M. the King, the Reverend Sidney Lampard Clarke, M.A., B.Sc., Chaplain-in-Chief, Royal Air Force, has been appointed an Honorary Chaplain to His Majesty.

AWARDS.—The King has been graciously pleased to approve the award of the Air Force Cross to Flight-Lieutenant W. E. P. Johnson and Flying Officer P. D. Cracraft, and of the Air Force Medal to Sergeant T. A. Newton.

SHORT SERVICE COMMISSIONS.—As from the 1st April, 1932, short service commissions in the Royal Air Force will be granted for a period of six years on the active list, instead of five as at present, followed by four years in the reserve. Since the first year is spent in training as a pilot, this scheme will allow of five years' employment in a fighting unit, and the Air Force will gain in efficiency by the increased experience of its short service officers.

The rank of Pilot Officer will be subdivided and short service officers will be commissioned on entry as "Acting Pilot Officers" on a standard rate of pay of 13/- per day (amounting to 11/6 per day at present current rates) and will be promoted to Pilot Officer on a standard rate of pay of 16/- (present current rate 14/2) after a period of twelve months' approved service.

Officers entered under this scheme will be paid a gratuity of £500 on transfer to the reserve on completion of their six years of active list service as compared with the gratuity of £375 payable at present on completion of five years' service. Officers selected for medium service from short service, i.e., for a further five years on the active list, will earn £1,000 gratuity for the complete term of service as at present.

The slightly reduced number of officers required for short service under this scheme will normally permit of a higher percentage being selected for medium service and also for retention on permanent commissions for a life career in the Air Force.

The upper age limit for entry on a short service commission is now twenty-two, i.e., candidates must not have passed their twenty-second birthday; the lower age limit is eighteen. With this lower age of entry, officers when transferred to the reserve under the six year scheme now to be adopted will not be older, and may well be younger, than has been the case in the past under the five year scheme; the additional year should therefore give rise to no special difficulty in obtaining civil employment on leaving the Service. They will as heretofore have the assistance in doing so of the Royal Air Force Officers' Employment Association if they so desire.

SELECTION OF FLYING INSTRUCTORS.—As an experimental measure, candidates for training as flying instructors will in future be drawn as far as possible, from officers and airman pilots who have completed four years' flying service after qualifying as pilot. In the past, potential flying instructors were drawn from pilots who need necessarily only have had one year's flying service after they had graduated as pilots.

TRAINING IN INSTRUMENT FLYING.—A special flight has been formed at the Central Flying School for the purpose of giving qualified Service pilots instruction in Instrument Flying. Instrument Flying is also being included in the flying instructors' courses and a modified form of the C.F.S. Course is being included in the flying training of all "ab initio" pupils.

ACCOUNTANT BRANCH.—It has not been possible to announce any vacancies for commissions in the Accountant Branch of the Royal Air Force in 1932. The next competition for entry into that Branch is postponed to 1933.

AIRCRAFT APPRENTICES.—In view of the urgent need for national economy a considerable reduction was necessary in the number of boys enlisted into the Royal Air Force in January for training as Aircraft Apprentices. The number taken was fixed at 180.

ATTACHMENT OF FOREIGN OFFICERS.—Dutch, Greek, Japanese, Norwegian, Swedish and Yugoslav officers have recently been attached to various R.A.F. Schools and Establishments for short courses of study and instruction.

LONG DISTANCE FLIGHT.

The Fairey long range monoplane successfully carried out a non-stop flight from England to Egypt during October. The aircraft left Cranwell at 6.45 a.m.

on 27th October and landed at Abu Sueir at 2.15 p.m. on 28th. The total distance to be flown was 2,857 miles.

The return flight to this country was commenced on 19th November and was carried out in easy stages, landings being made in Malta, Marseilles, Lyons and Le Bourget. On 15th December, while flying from Le Bourget, the pilots, Squadron Leader O. R. Gayford and Flight Lieutenant D. L. Bett, were obliged through fog to make a forced landing at Saffron Walden. The aircraft suffered no material damage and was flown to the constructor's works at Heath Row, where it is now being overhauled preparatory to the attempt on the world's long distance record, which it is hoped will be made between 19th and 25th February when the moon is near the full.

The route to be followed on the above flight will be the same, as far as Tunis, as that followed on the Egyptian flight in October and will then pass over Duala (Cameroon), St. Paolo de Loanda (Portuguese West Africa) Walfish Bay and onwards towards Cape Town. The course selected enables the pilots to avoid, as far as possible, mountainous country, particularly in the earlier stages.

In order to beat the existing record of 5,012 miles, it is necessary under the regulations of the Fédération Aéronautique Internationale to fly at least 100 kilometres (62.14 miles) more than the present figure so that the Royal Air Force pilots must fly a minimum of 5,074 miles, measured on a great circle course, to secure the record for Great Britain. This means that they must reach a point in British South West Africa about 100 miles South of the Cunene River and on an approximate parallel latitude with Etosha Pan.

ARMY CO-OPERATION.

During the period under review all Army Co-operation Squadrons carried out co-operation duties with the Army Commands as the culmination of their training.

Aircraft were provided for both sides during the Southern Command Manoeuvres which were held in the Salisbury Plain area and co-operation has been provided for a number of Brigade and Battalion Exercises.

In addition Staff College students from Camberley have carried out attachments to Squadrons to study the organization and working of Army Co-operation Squadrons. The annual Course for Senior Army Officers was held at the School of Army Co-operation, Old Sarum, from the 23rd November to 3rd December, 1931.

EGYPT

WEST AFRICAN FLIGHT.—A flight of four Fairey III F. aircraft of No. 45 (Bomber) Squadron, stationed at Helwan, began a cruise to West Africa, the Gold Coast, Sierra Leone and Gambia on 14th October. Proceeding by way of Wadi Halfa and Khartoum they arrived at Kano on 27th October according to programme. Here news was received of an outbreak of yellow fever in the Gold Coast and French West Africa which prevented the flight from carrying out their original programme. The cruise beyond Nigeria was therefore abandoned and the aircraft after visiting Sokoto and Niamey returned to Helwan on 21st November. During their restricted cruise the aircraft covered a distance of approximately 7,000 miles.

EAST AFRICAN FLIGHT, 1932.—A flight of four Fairey III F. aircraft of No. 14 (Bomber) Squadron, stationed at Amman, left Cairo on 11th January on a long flight to the Sudan, Kenya, Tanganyika and Uganda. The flight is due to return to Heliopolis at the end of March. The total distance to be covered, including local flying, is approximately 10,000 miles.

Co-operation with native troops, including the dropping of supplies by parachute and picking up messages, will be carried out at Entebbe, Nairobi, Meru and outlying centres in Kenya and at Dar-es-Salaam and Tabora. The most southerly point in the itinerary is Lindi in Tanganyika Territory, and other places to be visited are Zanzibar, Mombassa, Dodoma and M'Beya.

A stay of fourteen days on the outward flight and eight days on the return will be made at Nairobi, which will be used as a base from which visits will be paid to the various parts of Kenya. This is desirable as the day to day serviceability of landing grounds in the outlying centres cannot be relied upon, and the centres themselves are only a short distance from Nairobi. Opportunity will also be taken while the flight is at Nairobi to enable certain District Commissioners and Provincial Governors to study their respective territories from the air by providing flight facilities.

AVIATION IN FOREIGN COUNTRIES

ARGENTINA

Fifteen Avro 626 Training Biplanes with Armstrong-Siddeley "Lynx" engines have been bought by the Argentine army. These will be used for various phases of advanced training. A similar number of Junker multi-engined military monoplanes have been supplied by the Swedish firm of A. B. Flygindustri of Malmö. These machines will be fitted for troop carrying. All the foregoing will be stationed at the Military Air Base at El Palomar.

BELGIUM

Orders to the value of £300,000 have been placed by the Belgian Government with the Fairey Aviation Co. This is the biggest single order ever placed by a foreign government with the British Aircraft Industry. It includes over 60 aircraft of two types: Fairey "Firefly" II and two-seater "Fox" II, both fitted with Rolls-Royce "Kestrel" II engines.

FRANCE

TROOP CARRYING TESTS.—During the Autumn manoeuvres trial was made of transporting small bodies of troops in a large commercial monoplane with accommodation for twenty-eight passengers, and a detachment was flown from Reims to a field near Attigny, where it carried out a sham attack on the railway. In a later trial a party was flown to a position near Marchault from where it made a surprise attack on a regiment of infantry, while it was being embarked in a lorry train.

NEW BOMBING AEROPLANE.—It is reported that the French air force is about to take into service a new heavy long-distance bomber which is claimed to be superior in performance to any other machine of the type in existence. This is a biplane made by Lioré et Olivier, with four Gnome-Rhone engines—the French version of the Bristol Jupiter manufactured here under licence—which has a cruising radius of action of a little over 600 miles, i.e., 1,200 miles in a straight line, with a full load of 1,000 lb. of bombs on board.

ITALY

Do-X AIRCRAFT.—The Do-X aircraft delivered on the 28th August, 1931, has since carried out a series of flights. It has been named the "Umberto Maddalena" after the well-known Italian airman who was killed last year.

HIGH SPEED FLYING.—Although Italy did not compete in the Schneider Trophy race, their high speed section at Desenzano on Lake Garda was kept in being, and it was rumoured that they intended to attempt to break the speed record. It is understood, however, that any such attempts have now been postponed until the spring of 1932, and that the attempt may even be abandoned altogether.

ROUND-THE-WORLD FLIGHT.—Italy is reported to be preparing for a round-the-world flight, which is to commence during 1932. All metal S.55 flying boats are to be used, which are an improved version of the wooden S.55 flying boats which were used for the successful flight to Brazil last winter.

The personnel who are to take part in the flight are now in training at Orbetello, and it is understood that the first part of the flight will be to New York, via Lisbon and the Azores.

JAPAN

NAVAL AIR SERVICE

BOY PILOTS.—It is stated in the press that the progress made by approximately 100 boys who entered the Japanese Naval Air Service last year under the new scheme of training boys as pilots has been very good. Under this scheme boys undergo three years' elementary training, six months at sea and a further year's flying training, making four and a half years in all. The method of selection is extremely strict and the service appears to be popular as there were stated to be 8,000 applications for just over 100 vacancies.

According to the regulations, ordinary seamen can be promoted up to Lieutenant-Commander, though this promotion is rare. In the case of these boy pilots it is possible for them to attain the rank of Captain before they reach fifty-five years of age, provided they are considered suitable.

SOVIET UNION

AIRCRAFT INDUSTRY.—It is of considerable interest to note the latest product of the aircraft industry in U.S.S.R. The ANT-14 has recently concluded its initial trial flights at Moscow. This aircraft is a cantilever high-wing monoplane of all-metal construction, having a span of 41 metres and a length of 26 metres. It is equipped with five 480 h.p. radial air-cooled engines. The aircraft is designed for long-distance civil passenger traffic; besides a crew of four, it has accommodation for thirty-four passengers. This aircraft is a product of the T.S.A.G.I. (Central Aero-hydrodynamical Institute) and the designer is A. N. Toupoler, who has already achieved fame as an aircraft designer in U.S.S.R.

It will be recalled to mind that the Russian aircraft industry of the pre-revolutionary period was quite inadequate for the needs of aviation in that country, and that during the revolution and civil wars the industry was destroyed. Consequently, the present industry may be said to be only ten years old. The ANT-14 is, therefore, looked upon as a considerable achievement in view of the technical disabilities that the Russians have had to overcome.

NEW DEVELOPMENTS.—The following extract from the Russian newspaper *Krasnaya Zvezda* is interesting. It shows how the Russians forecast that the Arctic will be opened up, by air routes and dirigible lines, as a rapid means of transit between Europe and the Continents farther East. In anticipation of this, the paper reports the construction of an Air Port at Leningrad:—

"The Leningrad air port will be one of the best. Close to it there is being erected a big air station and hydro-aeroplane port. All buildings must be completed not later than 1931 and the complete air port (including air station and base) by the 15th September, 1932. The hydro-aeroplane port will be laid out in a style which is the last word in aerotechnique. Here there will be built hangars, two slipways, a hydroplane station, capable of accommodating 920 people, towers for light signalling, factory, kitchen, garage, living quarters for flying personnel, radio and meteorological stations. In the future, Leningrad will have one of the world's biggest transit main line junctions for aerial communications with Europe via the U.S.S.R. (Leningrad) to the Arctic, America and Far East (Japan, China and India).

"The aims of the Leningrad junction are the development of their own local light powered aircraft. It is known that until recently Leningrad played but a small part in the development of air traffic with Moscow, Ukraine and White Russia and other places in the Soviet Union. Now, in connection with the organization of the International Aeroarctic Company and dirigible lines via the U.S.S.R. to America, its role will be greatly changed. The last flight of the Graf Zeppelin via the U.S.S.R. to the Arctic Ocean and to America has proved the safety of possible dirigible lines. Finally, there is also the impending opening of the air lines Leningrad-Vitebsk-Kiev; Leningrad-Archangel-Murmansk-White and Barents Seas to Franz Joseph Land and back.

"All the work for the development of air lines, laying out of aero-ports, aerodromes and landing grounds must be speeded up as fast as ever."

SPAIN

Just over a year ago the Spanish Flying Corps was abolished as the outcome of Major Ramon Franco's efforts in connection with an attempted revolution. The Republican Government has now suppressed the Spanish Royal Army and Naval Air Services, and re-instituted the Flying Corps as an independent arm under the Minister of War. The Corps will comprise an Independent Force and a Co-operation Force; the former will include a day bombing Wing, a night bombing Wing and a fighting Wing, with bases at Seville, Leon, Madrid and Saragossa. The Co-operation Force will be allocated to the Army; each Army Corps will have a Wing consisting of two Reconnaissance Groups and one Day Bombing Group, and a second Wing of three Fighting Groups. No mention is made of any organization for naval air work.

SWITZERLAND

After extensive trials with various types of reconnaissance aeroplanes, the Fokker CV/E two-seater biplane, with a 650 h.p. Hispano-Suiza engine, has been adopted as the standard reconnaissance machine in the Swiss army.

These aeroplanes are to be constructed under contract in a factory which is being specially fitted for the purpose in Switzerland.

UNITED STATES

ARMY AIR CORPS.

NEW AIRCRAFT.—According to the *Army and Navy Register*, increasing interest is being shown by the Army Air Corps in monoplane types of aircraft, and orders

recently placed include the following types which will be used for "service test" purposes :—

Thirteen Curtiss Attack Aircraft—a two-seater, low wing, monoplane type, with 600 h.p. engine.

Five Lockheed Fighter Aircraft—a two-seater, monoplane fighter, with 660 h.p. engine.

Five Douglas Observation Aircraft—a two-seater, high wing monoplane type, with 600 h.p. engine.

Five Douglas Observation Aircraft—a two-seater, all-metal, monocoque, monoplane type, with two 660 h.p. engines.

Seven Douglas Bombardment Aircraft—a low wing, all-metal, monocoque, monoplane, with two engines of 660 h.p.

All engines in the above aircraft are Prestone cooled. It is stated that greater use of retractable undercarriages and wheel fairings will be emphasised in the new aircraft.

NAVAL AIR SERVICE.

MARINE CORPS SQUADRONS ON AIRCRAFT CARRIERS.—The *Army and Navy Journal* reports that a new policy has been adopted with regard to the employment of U.S. Marine Corps personnel and aircraft, and a Marine Corps observation squadron has been embarked in each of the two carriers "Lexington" and "Saratoga." Each squadron will consist of six aircraft, eight officers, and about thirty-five enlisted men. These squadrons are additional to the complement already carried by the carriers.

AUTOGIRO TESTS.—Trials have been carried out with an autogiro at the Naval Air Station, Hampton Roads, preparatory to testing this type of aircraft in one of the carriers at sea.

AIRSHIP NOTES

GREAT BRITAIN

"R.100" SCRAPPED.—Following on the decision of the National Government to abolish the Directorate of Airship Development and dispose of "R.100," the last remaining British airship has been sold to a private firm, and has been broken up in the hangar at Cardington. In a reply to a question in Parliament, the Under-Secretary of State for Air said that the estimated cost of preserving the framework of "R.100" on a care and maintenance basis would have been approximately £1,000 per annum in direct charges.

So far as can be seen, the only prospect of Britain again taking an active part in the development of airships lies in the suggested formation of an international scheme for trans-Atlantic commercial airships. So far this project does not appear to have got beyond the stage of conversations between Dr. Eckener and certain representatives of financial and aeronautical interests in Britain and the United States.

FRANCE

NEW NAVAL DIRIGIBLE.—France is developing airships of the semi-rigid type for convoy purposes, and a new dirigible with a capacity of 10,900 cubic metres has completed trial flights carrying a party of naval officers and 14 passengers. The airship flew over Paris for about two hours before returning to Orly aerodrome. She has two motors giving a combined 350 h.p.

ACCIDENT TO "V.6."—A small airship of the "Vedette" classe, which is used for coastal reconnaissance, while undergoing a training flight on 6th November, was caught in a violent gale accompanied by very heavy rain. She held out until nightfall, when she was compelled to try and make a landing; in doing so she was blown against trees, lost her rudder, and finally collided with a clump of trees. Two of her seven naval occupants were injured, and the envelope of the airship was completely destroyed.

GERMANY

THE "GRAF ZEPPELIN."—In addressing the third meeting of the International Organization for Polar Research in Berlin on Sunday, 8th November, Dr. Eckener referred to plans for a second flight to the Polar regions by the "Graf Zeppelin."

UNITED STATES OF AMERICA

AEROPLANE CONTACT NIGHT TRIALS.—Two naval training aircraft have carried out experiments with the trapeze gear fitted to the "Los Angeles." The airship was flown at a height of 2,000 feet over Barnegat Bay, and a series of contacts was effected by the two aircraft, one of which was "hooked-on" seven times and the other six times. It is understood that this is the first occasion on which this manoeuvre has been successfully carried out at night.

THE "AKRON'S" ACCEPTANCE TRIALS.—The naval rigid airship, "Akron," "ZRS-4" has been accepted and commissioned into the Naval Air Service. The announcement of the acceptance was made during "Navy Day" celebrations at Lakehurst Naval Air Station, and at the same time it was confirmed that the second airship, "ZRS-5," had been ordered.

Test flights of the "Akron" were carried out between 24th September and 18th October, 1931, some 75 hours being flown. The first flight lasted only 3 hours 47 minutes, while the final flight, the ninth, lasted 48 hours 18 minutes. It is understood that the performance of the new vessel was generally satisfactory, though its full speed of 72 knots was not attained. To overcome this deficiency a new set of propellers is being designed; the arrangement of the propellers to give upward and downward thrust is stated to have been of considerable assistance in ground handling.

The new airship left Lakehurst on 3rd November on a further flight with 207 persons on board. She has since been successfully moored to the airship mast in the aircraft tender "Patoka."

"ZRS-5."—According to the *Army and Navy Journal* of Washington, the "ZRS-5," upon which construction is proceeding, will have a capacity of 6,500,000 cubic feet, which is the same as that of the "Akron." The new airship's characteristics will be generally the same as those of the "Akron." The "ZRS-5" is to cost \$2,450,000, of which \$1,100,000 has been appropriated to date by Congress. The airship is due for delivery fifteen months after completion of the "Akron."

TRAINING IN NON-RIGIDS.—In order to provide hangar space for the "Akron" at the Naval Air Station, Lakehurst, N.J., the two non-rigid airships, "J-3" and "J-4," and the metal-clad airship, "ZMC-2," have been moved to Cape May, N.J., until the non-rigid shed now under construction at Lakehurst is ready for use.

In order that training may continue in the operation of non-rigid airships, naval classes will be sent from Lakehurst to Cape May during this period.

The Cape May station is at present used by the Coast Guard as a base for their airplanes and patrol boats.

CORONATION

On the 12th May, 1937, King George VI and Queen Elizabeth were welcomed by the people of Canada on their visit to the country.

STATE OF AMERICA

The United States has issued a postage stamp in honor of the Coronation of King George VI. The stamp features a portrait of the King and Queen, and is inscribed with the words "CORONATION OF KING GEORGE VI AND QUEEN ELIZABETH" and the date "12 MAY 1937".

REVIEW OF BOOKS

GENERAL

The American War of Independence. By Lieutenant-Colonel J. E. Whitton
C.M.G., p.s.c. (John Murray). 21s.

The war by which the American Colonies won their independence has naturally commanded more attention on the other side of the Atlantic than on this; and the William L. Clements Library in the University of Michigan contains a wealth of material, which has only recently become accessible to the historian. Through correspondence with the custodian of this library, Colonel Whitton has been able to draw upon that source of information, and his well documented narrative brings the story of the war up to date for the benefit of English readers.

Its most important feature is the explanation of what the author calls "the Confusion of Correspondence," which caused the "Saratoga" disaster. He shows that the responsibility for the failure of Burgoyne's campaign rests not so much with Lord George Germain, the Secretary of State, on whom the blame has hitherto been generally laid, as with General Howe, commander-in-chief in North America. Although Germain's formal despatch instructing Howe to co-operate with Burgoyne was never sent, yet it is certain that several weeks before he started for Philadelphia, Howe had received a copy of the despatch sent to Carleton, Governor of Canada, giving full instructions as to the carrying out of Burgoyne's plan, together with a covering note from D'Oyley, the Deputy Secretary. Howe must therefore have known what the Government expected of him, and that his junction at Albany with the forces from Canada formed the basis on which the plan of campaign for 1777 was founded.

Colonel Whitton also corrects the current version that the object of the proposed junction of forces was the isolation of New England. The sole aim was to unite the two armies for an offensive to be pressed home against Washington's force. The obvious course of transporting the troops from Canada by sea to New York had been ruled out by George III, lest it should expose Canada to the risk of a second invasion. Montgomery's and Arnold's advance on Quebec, in 1775, which had seemed a disastrous failure, now bore fruit and exercised a decisive influence upon what proved to be the critical campaign of the war.

The author's plan of making an occasional pause in the narrative "to give a bird's-eye view of the whole theatre of war on one given day" will prove helpful to the reader, especially for the period after the maritime powers of Europe had entered into the war, when naval operations in all the seas became the determining factor in the contest.

His suggestion that the appeal to arms might have been averted, if George III had himself visited his American dominions in the early years of his reign, can hardly be regarded as practicable under the British constitution of the 18th century.

It was not Mrs. Lindley Murray (page 146), but Mrs. Robert Murray, the grammarian's mother, who is popularly credited with having entertained Howe at the lunch, which "saved an American army"; the story seems to be based merely upon contemporary gossip, and it was only a single brigade which was in danger of being cut off on that occasion.

Fear and be Slain. By the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O. (Hodder & Stoughton). 12s. 6d.

General Seely gives his readers many stirring tales of adventure. Adventures are to the adventurous. He evolves the philosophy that every peril has its Providence, and that Providence manifested its goodwill in his case is shown in a marked degree. It is made clear, however, that determination to succeed—Foch's will to win—becomes a sub-conscious motive in those who early make continued efforts to overcome what General Seely calls "that useless failure of mankind—fear."

Of all the strange predicaments in which the author became involved that described under the title, "Water, Water, everywhere!" is surely the most remarkable, not only for the predicament itself, and the responsibility that a youth of twenty-three decided to incur, but for the miraculous intervention of Providence. The early stories of "Sea and Storm," "Wreck and Rescue," are epics in their way. "Early Battles" give an almost gruesome account of a small boy's experience at a school where bullying was carried out both by big boys and masters—a state of affairs that is only credible of a bygone age. The Boer War, no less than the Great War, provided many occasions when an eye for country, a ready wit, and common sense appreciation of military values brought success to the author's tasks. But even with General Seely things sometimes go wrong, as witness the chain of events described, and humourously described, in "Cambridge Manoeuvres, 1912"; but to have five apologies accepted by His Majesty cannot be ascribed to Providence.

General Seely has other things to record besides contretemps and adventures. He was in a position to know well many people highly placed, both in military and political spheres, and he gives the reader the benefit of his conversations on many occasions. The temperamental difference between Englishmen and Frenchmen is interestingly illuminated by the evidence that an Englishman is pleased when he hears a Frenchman trying to speak English, while a Frenchman is embarrassed, and often pained, when addressed by an Englishman, however fluently, in French. General Seely holds the opinion that there were three outstanding personalities of the World War, Hindenburg, Foch, and Lloyd George. While not joining issue with his selection and his reasons, there will be many who would not stop short of these names.

The Elements of Imperial Defence. By A. G. Boycott, R.A. (Messrs. Gale & Polden). 12s. 6d.

Within the limits implied by its title and amplified in the foreword, this book contains a vast amount of information in a manageable form. The difficulty of reaching agreement in a system which, although being reduced daily by modern science, is still world wide and involves other main problems, are well focussed up. The importance of overseas trade and the consequent necessity of sea power, modifications introduced by the rise in importance of the air arm, and the necessity for land forces for both internal and external security, all receive adequate attention. In the same manner, on the political side, the parts played by the Cabinet, the Committee of Imperial Defence, and the various Imperial Conferences are all carefully examined and attention is drawn to the fact that it may be necessary to arrange for unity of command and the "mobilization of all the resources, political, military, financial and industrial, available within the Commonwealth."

The book is divided into chapters each dealing with a single element of defence or country of the Empire—and appendices and bibliographies, when they exist, follow the chapters to which they refer. This arrangement helps to make a valuable book for both study and reference.

NAVAL

Brassey's Naval and Shipping Annual 1932. Edited by Commander C. N. Robinson, R.N., and H. M. Ross. (William Clowes & Sons, Ltd.). 25s.

This year's "Brassey" is full of good articles, and its publishers and editors are to be congratulated on having overcome the many difficulties of recent years and on having produced an annual fully worthy of the old and honoured name it bears. No better review of new construction, naval affairs, and marine developments, is to be found the world over than that contained in these pages.

The chapter dealing with the British Navy says in plain language what that companion publication, "Jane's Fighting Ships," tells to a great extent in pictures: "the year 1931 was disappointing in the influence of its events upon the well-being and potency of the Royal Navy. No progress was made towards arresting the decline in strength . . ." We are reminded, too, of the late First Lord's remarks on disarmament, that although we had taken the lead, we found that unless we were very careful when it came to negotiation "the more one gave the less one got." It is to be hoped that our political representatives at Geneva will read this chapter, ponder on those words of a Labour Minister, and listen to their professional advisers, rather than indulge in any more "gestures."

The Foreign Navies chapter is, again, a record of great activity by foreign Powers, to none of whom is security at sea anything like the same importance as it is to the British Empire. One ray of hope for our shipbuilding industry is the remark that those nations who have been buying their warships abroad seem to be discovering that spectacular designs and record-breaking speed trials do not necessarily mean good products, and that even if British-built vessels are more common-place and more expensive, they are the most efficient and, in the long run, the most economical.

Amongst the many other valuable contributions to the Naval Section is that dealing with the importance of Naval Reserves. With our dwindling regular force an adequate naval personnel in war is more and more dependent on trained Reserves, and the subject merits constant publicity.

In the Merchant Shipping Section is an article by an American writer giving an account of the Merchant Marine of the United States, and defending the policy of a Government subsidy. It makes interesting reading in comparison with the chapter on the Cunard Line, which follows.

The tables, silhouettes of warships and merchant ships and other important information contained at the end of the volume are up to the usual standard of excellence and accuracy, while the illustrations are well selected and, like the annual as a whole, admirably produced.

Jane's Fighting Ships 1931. Edited by Oscar Parkes, O.B.E., M.B., Ch.B. (Sampson Low, Marston & Co., Ltd.). £2 2s. od.

With a publication such as "Jane's Fighting Ships" ever available, it is remarkable that some of the most widely read daily papers of the greatest maritime Power in the world should so frequently display ignorance of the most elementary technicalities when describing warships. Even naval contributors are not guiltless, as witness a recent entirely erroneous description of "M.2," which attributed to her the defects of the "K" Class, merely because she and her sister ships originally had "K" numbers. Reference to this volume would have informed the writer, if he did not know or had forgotten, that the "M's" are not fitted with steam engines, necessitating many apertures, and that, far from having

bad diving qualities, they are "very handy boats both in dive and general control."

This is but one instance of the fund of detailed information to be found in these pages. At a time when some fifteen hundred delegates have gathered at Geneva to talk "disarmament"—while, incidentally, a first-class war seems to have started in the East—it is particularly interesting to study the powerful additions to the navies of the United States, France, Italy and Japan, and to see how comparatively small nations, such as Czecho-Slovakia, Finland and Yugoslavia, are gradually building up their fleets. Meanwhile, Great Britain, with her miserably inadequate replacements and her tremendous list of ships scrapped in accordance with Treaties, provides a section which makes most depressing reading compared with the proud array of her ships in bygone "Jane's."

Having eulogised this production for the wealth and accuracy of its information, it may seem churlish to pick out a mistake; but the best friends of an annual like this are its critics, and, after all, it tests the reviewer's own powers of observation to discern that the picture of a new Finnish Coast Defence ship has got exchanged with that of the German cruiser "Bremse." For the rest, we have only to suggest that some of the older plates are showing signs of age and would do with renewal—but then we have come to expect such an exceptionally high standard in this ever welcome publication.

Naval Eight. (The Signal Press). 10s. 6d.

No. 8 Naval Squadron was a unit which everyone who served in the air arm will remember. It built up for itself a reputation which excited the admiration of all members of the Royal Naval Air Service and of the Royal Flying Corps. "Naval Eight" gives the history of the Squadron from the time of its formation, in October, 1916, until after the Armistice. The story is told through the mouths of members of the Squadron and there is no doubt—as the present reviewer, who happened to be stationed on the same aerodrome during part of his service in the B.E.F., can testify—that something of the tradition and something of the spirit of the Squadron is passed on to the reader. At the end, when the Squadron is disbanded, one feels that a fine and strongly individual being has been put to death.

The Foreword is by Air Vice-Marshal Sir Charles L. Lambe, and the chapters that follow are by Group Captain G. R. Bromet, Major Christopher Draper, Squadron Leader R. J. O. Compton, Flying Officer Johnstone, Captain D. W. Pinkney and Mr. F. D. Hammond.

Every aspect of the life and work of the Squadron is dealt with faithfully and vividly, and there are many good illustrations. The Squadron was detached from the R.N.A.S., Dunkirk Command, at the urgent request of the Army Council, and its subsequent true adventures furnish more exciting reading than can be found in many war books avowedly devoted to providing excitement and nothing else. The book makes it seem the more lamentable that our much boomed British film producers cannot see farther than their own noses. For here is material for a dozen films more "thrilling" than anything that the pseudo-service flyers of Hollywood have ever presented, while the unaffected style of the authors and absence of preciousness make the book entirely refreshing. Clearly the original intention was only to form a permanent and readable history of the Squadron for its members; but the result has a wider appeal, and anyone who wants a good tale briskly told should buy this book.

Strange Intelligence. By Hector C. Bywater and H. C. Ferraby. (Constable & Co., Ltd.), 10s. 6d.

This purports to be a "partial record" of the British Secret Service prior to and during the Great War. Much of it is written in a light and chatty style which, coupled with the fact that the incidents are founded on reality, will appeal to those who delight in being initiated into official secrets. The descriptions of how information was obtained by British agents in Germany, and how the machinations of enemy agents in this and other countries were successfully countered, make good copy of the Edgar Wallace type, but the Service reader will detect a great deal of padding—matter which is common knowledge or readily available in existing works and text books.

The fact is that there are always people who delight to be mysterious. Sometimes they are in official positions ; "secret" and "confidential" are words dear to them because they appear to enhance their "little brief authority" ; others, like the spy-mongers to whom the authors of this book allude humorously, create mysteries to their own satisfaction. The war called for a large additional staff of what were really offshoots of the regular intelligence departments. It also produced a great deal of ostentatious mystery, which was often rather ridiculous. For instance, a much-respected chief, referred to with bated breath as "Old C," was one of the most conspicuous individuals in and around Whitehall at the time when he held office.

There are really two kinds of secrecy as applied to defence and the Services—secret information and secret methods of obtaining information or for denying it to the enemy. It is the defect of the official mind that information, which is far more vital to our own success or knowledge than it is to the foreigner, is too often regarded as secret. On the other hand, it is not apparent that any good purpose can be served by divulging the methods used for securing information or for frustrating the enemy. To point the means whereby we were successful and the reasons why our opponent failed in secret service work cannot be in the national interest. To accuse the authors of this entertaining book of such a lapse would be to attach too high an importance to their disclosures ; but it is safe to say that the subject is one for writers to exercise full scope for their imagination in the realms of fiction rather than to seek inspiration from the real work of the Secret Service.

Colonial Admiralty Jurisdiction in the Seventeenth Century. By Helen J. Crump. (Longman's, Green & Co.). 9s.

Miss Crump's "Colonial Admiralty Jurisdiction in the Seventeenth Century" is a further contribution towards the series of Imperial study monographs issued by the Royal Empire Society, and is fully as valuable as its predecessors. The book deals briefly with the rise of the Admiralty Courts in England and with the functions they came to perform ; it also shows how the great emigration in the first half of the XVIIth century caused a tendency for the reproduction of these Courts in the Colonies. It was not until after the Restoration, however,—with the Duke of York at the Admiralty—that real Colonial Admiralty Courts can be said to have made their appearance. Previous to this their functions had usually been performed by the Governor and Council, while efforts to set up such Courts in New England and Newfoundland, for the purpose of guarding monopolies, had been strenuously opposed by the Western ports interested in the Newfoundland fishing banks. Jamaica, centre of piracy and privateering, was the first Colony to possess a properly constituted Admiralty Court, and one that, oddly enough, had greater powers in some respects, than an English Vice-Admiralty Court. This

precedent was reflected in other similar Colonial Courts. Barbadoes and Tangier came next, and by the end of the century a system of Admiralty Courts had sprung up all over the Empire. So far as their work was confined to prize and piracy, their jurisdiction was popularly admitted, but their attempts to uphold the Acts of Trade landed them in an unpopularity which was destined to play its part in the collapse of the old Empire.

Miss Crump is to be congratulated on her scholarly handling of an abstruse subject.

With the Harwich Naval Forces 1914-1918. By Commander C. D. A. Wollard, R.N.

This is an account of the work of the Harwich Forces during the War, and many of the incidents described will be of interest to those who served with them. It is profusely illustrated, but the pictures suffer much from poor reproduction. It is published for private circulation, and copies can be obtained from the author at 18, Northumberland Avenue, W.C.2, price 5s. 6d., post free.

MILITARY

Albert, King of the Belgians, in the Great War. By Lieut.-General Galet. Translated by Major-General Sir Ernest Swinton, K.B.E. (Putnam & Co.) 25s.

The part played by Belgium in the opening phase of the Great War is far more important than might be supposed from a perusal of most military histories of this period. The Belgian resistance exercised a far deeper influence on the course of events than is often admitted. The glamour of the Marne has been allowed to obscure the potentialities of victory that might have resulted from another and more appropriate plan of campaign on the part of the Allies. The military student must therefore be grateful to General Swinton for having placed within his reach this remarkable account of the fighting that occurred in Belgium between the first German attack on Liège on 6th August and the stabilization of the front, along the Yser and in front of Ypres, at the end of October, 1914.

The Belgians were unprepared for war. The Belgian General Staff, misjudging the situation wished to defend the Ardennes region ; King Albert, seeing things most clearly, did his best to move his troops further north and hold Liège to the last. But the forts covering this town were inadequate to hold out against modern artillery without the help of a powerful field force—which was not forthcoming. Liège fell ; so did Namur. The Belgians fell back to Antwerp ; their forces, as General Galet admits, were scarcely of a quality to conduct active offensive operations. Nevertheless the influence of Antwerp with its garrison of field troops proved considerable ; so great in fact that it detained some twelve German divisions that might have been employed on the Marne. It was not until the latter battle was over that the Germans dared undertake the reduction of that fortress. It was only then that the British 7th Division—with a Cavalry Division—arrived to assist the Belgians who gradually struggled back to the Yser. The importance of the Belgian forces until then had been out of all proportion to their actual worth in battle.

General Galet is not sparing of his criticisms as to the dilatory manner in which the guarantors of Belgian neutrality came to the assistance of his country. He is probably correct, since the more the beginnings of the War are studied, the clearer does it become that the Allied plans for resisting the German invasion were entirely

faulty. And this was not all; for had the belated French advice to the Belgian General Staff been followed, the Belgian Army would have fought a pitched battle on the River Gette, behind Liége, and then retired south-westward to join the French forces. It is doubtful if it could have done so, while the influence of Antwerp in holding up important German forces would never have been so palpable.

Throughout the operations, and indeed well before them, this book shows clearly that King Albert played a distinguished part in keeping up the spirits of his troops, as well as in giving invaluable guidance to his General Staff. The Allies had unquestionably committed a very grave mistake in not taking into account the strategic advantages that they might have reaped from a more systematic defence of the River Meuse. It is purely speculative to put forward the hypothetical results of any such action, still it appears to be not far removed from probability to state that such a course might have prevented much Belgian and French territory from falling into the grip of the invader.

The book merits careful study; it is clear and easy to follow. The translation reads admirably. We can only regret that General Swinton has not found means to omit certain paragraphs, that favour somewhat of the courtier. In their place he should have annotated the book to bring it into closer connexion with our own Official History. There should certainly have been an Index. The maps are good, but several of the photographs are unnecessary in a serious volume of this nature.

The World Crisis : The Eastern Front. By the Right Hon. Winston S. Churchill, C.H., M.P. (Thornton Butterworth & Co.) 30s.

This sixth volume of Mr. Churchill's history of the Great War is a worthy companion to its predecessors. It deals with the war on the Eastern Front, "the Unknown War" as the author styles it in the preface, and reinforces many of the opinions, mainly such as concern the Gallipoli campaign, that were put forward by him in preceding volumes. Although this treatment is, to some extent, a disadvantage, it does enable the reader to appreciate, not only the magnitude of the effort made by the Russians on behalf of the Allied cause, but also the fidelity with which they answered every call made upon them.

The book is somewhat unequal in its allotment of space to the various parts of so great a theme. Thus, we begin with nearly one hundred pages dealing with the causes of the war, and showing that its origin can be traced in Vienna and Berlin. These chapters are certainly some of the best that Mr. Churchill has ever written. The effects of the murders of Sarajevo have nowhere been explained more clearly or more convincingly. After that he devotes some space to the colossal Battle of Lemberg, which ended in an Austrian debacle, and might conceivably, with better management and fortune, have put Austria out of the war for good. Having described this battle, or series of battles, in which 500,000 men became casualties, Mr. Churchill is able to study the Eastern and Western Fronts as a whole, setting off the combined results of Lemberg and of the Marne. We thus become better able to appreciate the true value of the Battles of Tannenberg and of the Masurian Lakes. In his description of this momentous fighting, the author seems to follow General Ironside's well-known study of Tannenberg very closely; he ascribes the chief merit of the victory first to Hoffmann's strategy and, secondly, to Von François' tactical insight on the day of battle.

With Falkenhayn's accession to power, Mr. Churchill passes to the strategic situation from the point of view of the German central position, and he demonstrates the pros and cons of the Eastern and Western schools of strategy. The

amazing Battle of Lodz is described in some detail. Next, some space is devoted to the little known fighting in the Caucasus during the winter of 1914-15, when the Turks were signally defeated near Sarikamish.

It must be confessed that in describing events from the Spring of 1915 onwards Mr. Churchill seems to have tired of his work, or perhaps he may have found other interests to distract him; he can only devote a bare hundred pages to the destruction of Serbia, the great break-through of Gorlice-Tarnow, and Brusilov's final attempt in the summer of 1916. This is all too short. Strictly speaking, this story should have occupied twice the space; indeed the entire narrative could, to considerable advantage, have been spread over two volumes.

The style of the work will be familiar to all who have studied Mr. Churchill's previous Works. If it errs at time on the side of rhetorical and somewhat florid outbursts, it always holds the reader, and the word-portraits he gives of the chief actors in the drama are vivid and convincing. The maps are truly excellent; without them the story would be difficult to follow. Some of the facts have been taken from the valuable and all too little-known articles dealing with the Eastern Front that appeared in *The Army Quarterly*, but the whole book is clearly founded on careful, if not always first hand, research based on unimpeachable authorities. In short, it is not only intensely readable and informative, but it also fills a real want.

Military Operations : France and Belgium, 1916 (down to July 1st).

Compiled by Brigadier-General Sir James E. Edmonds. Maps and Sketches compiled by Major A. F. Becke. (Macmillan & Co.). Text 12s. 6d.; Appendices 7s. 6d.; Maps 5s. 6d.

This fifth volume of the History of the War in France and Flanders covers the period beginning with the assumption of the chief command by Sir Douglas Haig and closes with the 1st July, the opening day of the battle of the Somme. It is a pity that considerations of space would not allow the narrative to deal with that entire battle, since it would be far more instructive to study the course of this protracted struggle as a whole. In addition, it is not possible to draw any really satisfactory deductions from the 1st July without taking into account the subsequent course of events. The compiler has, in fact, been obliged to look beyond that date in order to present any criticisms of the day's fighting; his comments apply in great measure to the results of the whole battle. On the other hand, by stopping short at the 1st July he has been enabled to present a picture of the growth and re-organisation of the British forces in France during 1916, which is of intense interest and also contains much that needed relating. Consequently, we can accept the limits that have been imposed on this volume, although we can only regret that the remaining story of the Somme will not be in print for a long time, owing to the decision that the next volume of the Official History shall deal with the crisis of March, 1918. The book resulting from this treatment is a remarkably readable and illuminating account of the expansion of the B.E.F., and of the manner in which it was organized and trained to fight its first great battle. If regarded from this angle the story is fittingly brought to its climax with the end of the first day's fighting on the Somme.

The first section of the book, dealing with the evolution of the Allied plan of campaign for 1916 is, perhaps, the most important section from the point of view of the student of war. In these few pages the compiler shows clearly how the French views for the offensive of 1916 overrode all considerations of a purely British nature, and how loyally Sir Douglas Haig fell in with these desires, even

though he might dissent from the resultant plans. There is little doubt but that the French regarded the British armies chiefly as a means of wearing down the Germans by hard fighting; indeed, all their Allies were to serve the same end. It is thus clear from this and other portions of the book that the "war of attrition" on the Western Front was distinctly the set policy of French G.Q.G. Further, a great part of the responsibility for the heavy casualties incurred on the 1st July could be ascribed to the French views concerning the actual place and time of the British attack on that date. Moreover, to suit French convenience much valuable ground was handed over to them on the North bank of the Somme, a concession which greatly hampered General Rawlinson's movements at a later date. Again, in order to suit the French, the final date of the assault was postponed, while a still more momentous factor in the battle was the acceptance by Sir Douglas Haig of the French choice of the hour of the first attack on 1st July. There is reason to believe, after reading this volume, that, if this attack had been launched at about dawn, the result might have been rather different.

That portion of the book dealing with the organization of the various services, departments and institutions of the B.E.F. is clearly the work of various hands and reads more unevenly; at the same time the value of the subject matter is enhanced by this treatment, whilst the fact that such valuable matter and experience has thus been preserved should endow these chapters with a very lasting value.

There follows a long section dealing with some of the more important of the operations that took place during the first six months of 1916. A perusal of these accounts should go a long way towards dispelling the idea that the B.E.F. was doing little throughout this period; the casualties alone amounted to no less than 125,000 for that half year. Of still greater interest is the compiler's definite conclusion that wherever either side had judged that any sector of front should be taken, this object could usually be realised. The trouble began when the problem of the retention of a captured position arose.

It would be difficult to criticise in any detail this painstaking compilation, which is literally a compilation and not an independently written narrative. There is little doubt that it reaches as near as can be a standard of absolute accuracy—no mean achievement when the mass of material is taken into account. A word of praise must be accorded to the maps which render the study of this tightly packed volume so much easier.

The Fifth Army. By General Sir Hubert Gough, G.C.M.G., K.C.B., K.C.V.O., etc. (Hodder & Stoughton). 25s.

Sir Hubert Gough's personal share in the Great War was remarkable. Beginning the campaign as commander of the 3rd Cavalry Brigade, he fought at Mons, throughout the retreat, at the Marne and the Aisne, and finally played a distinguished role in the defence of the Messines-Wytschaete ridge. The whole of this portion of his story is remarkably well related; particularly striking are the author's personal reminiscences of the very first days of the war.

Throughout the summer of 1915 General Gough commanded the 7th Division through the Battles of Aubers Ridge and of Festubert. He was then promoted to the command of the 1st Corps and fought at its head at Loos. In the spring of 1916 he was again promoted to command the Reserve Army which had been assembled behind the Fourth Army with a view to exploiting any success that might be achieved by the latter. After the failure of the great attack of 1st July,

he was despatched to take command of the shattered Xth and VIIIth Corps on the left of the Fourth Army.

Much to his credit, Gough then countermanded the order already issued to these two Corps to renew the battle. Slowly he began to work forward with his right until his troops nearly encircled Thiepval which then fell into his hands. That mistakes were made in these operations has to be admitted, and that very heavy casualties were incurred is equally to be deplored. Largely as their result, and in spite of the final success, Gough's name undoubtedly became unpopular in Government circles. This impression was heightened by his lack of appreciable success at Bullecourt in May, 1917, when the Fifth Army was ordered to support the Third Army, then fighting the Battle of Arras.

In that autumn the third Battle of Ypres was then undertaken by the British, nominally to relieve any possible attack on the French armies. These operations threw a terrible strain on the troops owing to the abnormally bad weather conditions under which they were fought. The Fifth Army suffered heavily and service in its ranks undoubtedly grew unpopular among the troops. Lastly, there came the great German onslaught against the Third and Fifth Armies on 21st March, 1918.

It is really in defence of his leadership of the Fifth Army, and as a protest against his supersession before the end of that fighting, that General Gough has written this book. It is skilful pleading and contains a dignified account of the great battle, while throughout his narrative he shows himself a severe critic of the Government, and more particularly of Mr. Lloyd George, who had so often intervened in the higher conduct of the war. General Gough is equally unsparing in his criticism of our French Allies; he strongly resents Marshal Foch's conduct when visiting the Fifth Army headquarters on 26th March. He does not spare our own G.H.Q. for not keeping in better touch with him throughout the crisis.

General Gough has put forward a very strong case for himself; for his troops no praise of his is needed, since the men unquestionably did all that could be expected of mere mortals, while it has long been known that the Fifth Army managed to hold together in spite of the enormous superiority of the attack. It is a proud tale. Nevertheless it would be idle to maintain that General Gough may not be forgetting a good deal. Many of those who fought in the Fifth Army during those critical days can remember this or that seeming trifle which, when added together, explain much that happened. The truth, however, is that General Gough had won for himself a "bad press" for the losses of the Somme and of Passchendaele; this was the reason that led to his downfall.

Le Triomphe de l'Idée, 1914. By Général F. Gascouin. (Berger-Levrault, Paris). Frs. 15.

This is a thoughtful study of the causes, small and great, of success and defeat in 1914, the title of which should be translated "The Triumph of Ideas." The author, from the internal evidence of the text, is an artilleryman, and his view is that the change of the French fortunes in 1914 came when, by an "Instruction" issued on the 24th August, General Joffre abandoned the theories of the French General Staff, that battles could be won by infantry alone, and ordered that no assault should be launched without artillery preparation, and then only over a short distance. He contrasts the scientific education of General Joffre, an engineer officer who had commanded both an artillery and an infantry brigade, with the narrow training of Moltke (infantry) and Falkenhayn (cavalry). He also gives a detailed comparison of the French and German field guns: the 75 was notoriously superior to the 77; but he admits that the Germans were better

prepared with heavy guns. He advocates the formation of a technical General Staff alongside the tactical one. Général Gascouin, as an exception to French writers, does justice to the part played by the B.E.F. in the early part of the war.

Napoleon of the Snows. By Major-General Sir John Adye, K.C.M.G., C.B. (Nash & Grayson). 21s.

The monumental work of Captain de Cugnac, which is almost unknown in England and has never been translated, was based on a minute study of the entire surviving documents of the Marengo campaign. It has now been used by Sir John Adye as the groundwork for this volume, in which he analyses the achievements of the "Army of Reserve" under Bonaparte's personal leadership in May and June, 1800. The result is a serviceable account of a remarkable campaign. The brevity of that campaign may seem to us now to be incredible ; its results were astounding ; the difficulties surmounted by Bonaparte were immense. The crossing of the Great St. Bernard Pass, at a time when it was still covered with deep snow and approached only by a mule track, must rank with Hannibal's passage into Italy in 218 B.C. (not A.D., as the author states), as one of the historic feats of arms throughout the ages. The Army of Reserve was neither a seasoned nor a good army. The transport of the artillery across the St. Bernard was effected by means of sledges, which were manhandled over the snow, or the guns were carried and dragged across in pieces, a wonderful performance by the French gunners. The unexpected resistance then offered by the Fort de Bard, a small mountain fortalice, nearly brought about the failure of Bonaparte's plan of campaign. Finally the French army found itself on the Po, and thus brought about a total dislocation of the Austrian movements. Melas misjudged the situation ; Bonaparte, misled by the blunders Melas committed, split his forces. His success at Marengo was brought about by Desaix, who had been sent off on a fool's errand but returned to the sound of the guns just in time to secure Bonaparte against actual defeat by converting the battle into a brilliant victory. It is an amazing story, and has been exhaustively handled by de Cugnac. Sir John Adye relates the story entirely as a study of Bonaparte's work. Unfortunately he is rather too brief in his description of Marengo.

As an example of difficult operations in high mountains this whole campaign offers features of considerable interest to all who may have to deal with similar problems. The opposing forces were not large ; the war shows Bonaparte at his best, both as administrator and as commander in the field. For these various reasons the study of this book may be recommended. This brilliant campaign of Marengo, indeed, is too much neglected. It is true that this work contains little that pretends to be original, but it is a painstaking compilation, pleasantly recounted, and is interesting. As a manual of history it would have been greatly improved by more and better maps, also by an index ; for to follow Bonaparte's movements before Marengo it is necessary to have recourse to an atlas or another account of the campaign—preferably Horsetzky's map.

Bonaparte's Adventure in Egypt. By Lieutenant-Colonel P. G. Elgood, C.M.G. (Oxford University Press). 12s. 6d.

The Egyptian expedition of Bonaparte possesses many features of interest, although the actual fighting that took place was of a somewhat unimportant character ; thus the Battle of the Pyramids cost the French 30 killed, while the Mamelukes left 2,000 dead on the field. It is the conception at the back of the entire expedition that supplies the main interest to Colonel Elgood's study.

His title is correct ; the whole undertaking was literally "an adventure." Within that framework he may be said to have produced an interesting and readable book, although it must be confessed that the style he adopts is a trifle heavy while lacking at times in distinction. Neither does the inclusion of a bird's eye view of the French Revolution as a whole appear very germane to the whole theme. However, this prelude is short and can be skipped by the student. We would also prefer to refer the reader to Professor Spenser Wilkinson's recent volume dealing with Bonaparte's early years. Nevertheless when Colonel Elgood settles down to his task of recounting the Egyptian expedition itself he becomes informative and his narrative runs well. The Syrian expedition is also adequately dealt with.

It is astonishing to find how the march of Bonaparte on Cairo recalls the similar enterprise of Sir Garnet Wolseley in Egypt in 1882. The Battle of the Pyramids is not so very unlike that of Tel-el-Kebir ; while the march across the desert of 1799 recalls that of the British at the later date. The tactical ideas underlying the operations in either campaign were not so dissimilar.

It is, however, the recital of the French Palestine campaign and the role of the British fleet in that episode that provides the main interest of the book. First the Battle of the Nile, then Sidney Smith's defence of Acre, were the true causes of the French failure. It is in this respect that Bonaparte's Syrian campaign differs radically from that of Lord Allenby over a century later : Bonaparte could not depend on the sea, Allenby could and did. It is all an amazing story, for without the British fleet and Sidney Smith there is little doubt that Bonaparte would have established French rule in Syria. Whether he would have stayed to do so is another question, since the internal situation in Paris interested him more. So he left his army in Egypt in order to reach Paris in time to achieve the coup d'état which brought into being the Consulate, his first step towards the imperial throne. The bibliography and index are good, but better and more maps would facilitate the comprehension of the story, particularly of the Syrian campaign.

Parergon or Eddies in Equatoria. By Captain John Yardley, D.S.O. (J. M. Dent & Sons). 10s. 6d.

Captain Yardley wields a pen for apt description, whether of nature or of the affairs of men. Without any attempt at taking credit to himself he shows his own determination, resource and military skill and leadership. We know no account which better describes the difficulties inherent in operations in such a terrain as Equatorial Africa—the ravages of sickness, and the dangers from flood, heat, beasts and reptiles. Those who read may mark the responsibilities which young officers may have to incur in the natural course of the duties they undertake in such countries, whether it be Nigeria, Eastern Africa, or, as in this case, Equatorial Africa.

Captain Yardley, after wounds and sickness contracted on more than one front, managed to evade final evacuation from Sinai in 1917, and by his own exertions got to the 6th Equatorial Company on the Uganda border. He and his company were very soon drawn into the operations for the punishment of the warlike tribe of Turkhana, to the west of Lake Rudolph, for cattle and slave raiding, with the support of the Abyssinians. It does not seem quite correct to say these operations were one of the many side shows of the war, because they took place in 1918, but the Turkhana were a constant source of trouble before 1914 and have been since 1918.

By April, 1918, a combined force of some 550 rifles, drawn from Equatoria and British East Africa, had concentrated after many vicissitudes on the western

shore of Lake Rudolph. A large force of raiders were located in the hilly district just North-West of the North end of the lake, and it was decided to carry out an encircling operation in several columns. In the course of this Captain Yardley's company bore the brunt of a severely fought action at Kangala against a greatly superior number of well armed Abyssinian soldiery, who were supporting the Turkhana. In this fight all three of the Sudanese officers of Captain Yardley's company were killed. He gives a most spirited account of this brilliant little action, which ended in the complete discomfiture of the raiders.

The reviewer must join issue with the author when he states that in 1916 the campaign in East Africa had been brought to a successful issue by General Smuts. It was because a still more arduous campaign was being fought throughout 1917 that an efficient battalion of the King's African Rifles could not be spared for Turkhana. Hence the presence, and mutiny, of the ex-German prisoner battalion, admittedly most unwisely recruited.

The reader should ponder over Captain Yardley's "Afterthoughts." The problem of carrying out our responsibilities to peoples we are supposed to protect has not yet been satisfactorily solved.

Rifleman and Hussar. By Colonel Sir Percival Marling, Bt., V.C., C.B. (John Murray). 18s.

To those who desire to gain an insight into the Army, as it was in the days before the South African War, this book should come as a veritable "find." It is written strictly in diary form; it is unconventional in style; it is interlarded with spicy anecdotes, and is full of those little touches that are all too often lacking in many more formal military memoirs. The writer walks through these pages as a live figure: country gentleman, sportsman, amateur jockey, soldier, traveller—all at the same time. The diary makes little pretence of literary merit, but it is none the less interesting for that, because it rings true and reproduces to perfection the flavour of the mid-Victorian country house and the full aroma of the military ante-room of that date.

Having joined the 60th Rifles, Sir Percival fought in the Boer War of 1881 and at Tel-el-Kebir, where he tells how the battalion perspired in its "thick black rifle serge" in the desert. Next he fought in the fierce little Sudan Campaigns of 1884-85, where he won the V.C. at Tamai. Then he transferred to the 18th Hussars, and later went through the South African War with that regiment. The details he gives of the siege of Ladysmith and of the whole Boer War are both naive and highly interesting. Indeed the South African chapters are in some ways the best in the book.

Service in the Cavalry must have been easy in that period, for the author confesses to having enjoyed 247 days leave in one year. It is all very strange reading for one who thinks in terms of modern armies. Life was simple, too, in those days. Campaigns were sporting expeditions; medals and decorations were regarded largely as memorable "super-bags" of game. Religious and social duties were clear-cut, and so easy to satisfy. The reader of to-day may well envy the facility with which Sir Percival adapted himself to all the tasks falling to the lot of a country squire. He raced, he hunted, he shot, managed his estate, presided at county functions with equal success in each capacity. But he worked hard at times; and he was clearly a good soldier, according to the standards of his day. Still one cannot overlook the fact that he had many advantages: a fine seat on a horse, a steady eye, considerable worldly wealth, and he was popular wherever he went; he won the V.C.; inherited a baronetcy. What more could a

soldier want? Only one thing; and that Sir Percival clearly had, for he ends his book: "Above all I thank God for a good wife!"

It is a volume worth reading and pondering over, for life has changed since then.

REGIMENTAL HISTORIES

Officers of the Green Howards (formerly 19th Foot), 1688 to 1931. By Major M. L. Ferrar. (Baird & Co., Belfast). 10s. 6d.

This volume contains a roll of all officers who served in the regiment from the date of its formation down to the present day. It gives dates of all promotions and war services of each individual, together with a note of any particularly distinguished action performed by him.

Historical Records of the Queen's Own Cameron Highlanders. Volumes III and IV. (Blackwood & Sons).

Volumes I and II of this monumental regimental history appeared in 1909. These two volumes now bring the history of the regiment down to the close of 1919, devoting virtually their entire space to the Great War. Volume III deals with the old regular 1st and 2nd Battalions, the 3rd Militia, the 1/4th, 2/4th and 3/4th Territorial Battalions. Volume IV relates the history of the Cameron Highlanders of Canada, of the seven Service Battalions of the Regiment, as well as that of Northern Counties Highland Volunteer Regiment. It then carries the history of the existing battalions down to the present day. Both volumes are illustrated with portraits, and there are copious appendices. The entire production is a fine example of regimental patriotism.

The History of Coke's Rifles. By Colonel H. C. Wally, C.B. (Gale & Polden). 40s.

The regiment known as Coke's Rifles or 1st Punjab Infantry F.F., later as the 55th, and again the 1st Battalion, 13th Frontier Force Rifles, was raised in May, 1849 by Captain John Coke of the Indian Army. It served in the Mutiny and in nearly all the Indian frontier wars, until the Great War, when it saw service in Waziristan, East Africa and South Persia. It was again in Waziristan in 1919-20, and served in Iraq.

This history is clear and succinct; it gives sufficient detail to render the narrative complete and interesting.

AIR

Jane's All the World's Aircraft, 1931. Edited by C. G. Grey; Compiled by Leonard Bridgman. (Sampson Low). £2 2s.

Year by year "Jane's All the World's Aircraft," that indispensable reference work, gets bulkier, reflecting the growth of flying. But the volume now before the present reviewer is so large that one of the questions that must be asked about it is whether some compression is not possible in order that the suggestion of an unwieldy and indiscriminate massing of facts may be avoided. There are as usual the five parts, dealing with Civil Aviation, Service Aviation, the World's Aeroplanes, the World's Aero-Engines and the World's Airships. There are the usual aircraft and engine performance figures, as furnished by the manufacturers,

and there are the usual photographs. Scanning the volume in search of some means of compressing the information one comes to the conclusion that the space devoted to photographs could be reduced.

The lavish supply of photographs undoubtedly adds to the attraction of the volume ; but the pictures themselves give no evidence of a coherent plan in their subject matter. Pictures of Royal Air Force men doing physical training, of groups of officers belonging to various service units ; these have a pictorial and a personal interest ; but the question arises whether they should be admitted to a volume that must cater mainly for those in search of solid aeronautical information. On the other hand the general arrangement drawings which used to be so admirably executed by Mr. Leonard Bridgman and which did give definite and valuable information have disappeared. Apart from this indication of the need for a keener discrimination in the selection of the photographs, this year's issue is wholly excellent. It provides the student of aviation with a fund of information the like of which is unobtainable elsewhere in any language.

An Introduction to Aeronautical Engineering. Vol II : Structures. By J. D. Haddon. (Gale & Polden). 6s.

Volume II of the "Introduction to Aeronautical Engineering," by J. D. Haddon is designed for students of aeronautics. Without delving deeply into higher mathematics this little book gives accurate and detailed information about internal structures. The principles of aeroplane design are treated carefully and adequately for students. It is really a sequel to the Volume on the Mechanics of Flight, which was the first of the series, but which, owing to unexpected delays, has not yet appeared, and it will be followed by the volume on Materials. One hundred diagrams and a number of illustrations are given and there are many examples with their answers. The book is one of those produced recently which do not pander to "popular" interest, a fact for which one may be thankful, when so many air books are blatantly "popular" in the worst, daily-paper sense of that word. It is of particular value to students and all who think of making aeronautics their profession. Professional air pilots also will benefit by the instruction it gives, for the pilot of to-day is still much more than a driver, and usually prides himself upon his knowledge of design. The time will come when air service stations, like garages, will be dotted about all over the world, and when skilled help will be available at short notice, no matter where a landing is made. Then wide technical knowledge in pilots and navigators will not be required. But that time is not yet ; so that it is not only to the student but also to the practical pilot, navigator and mechanic that this book is recommended.

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